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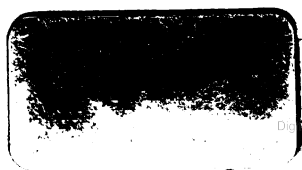
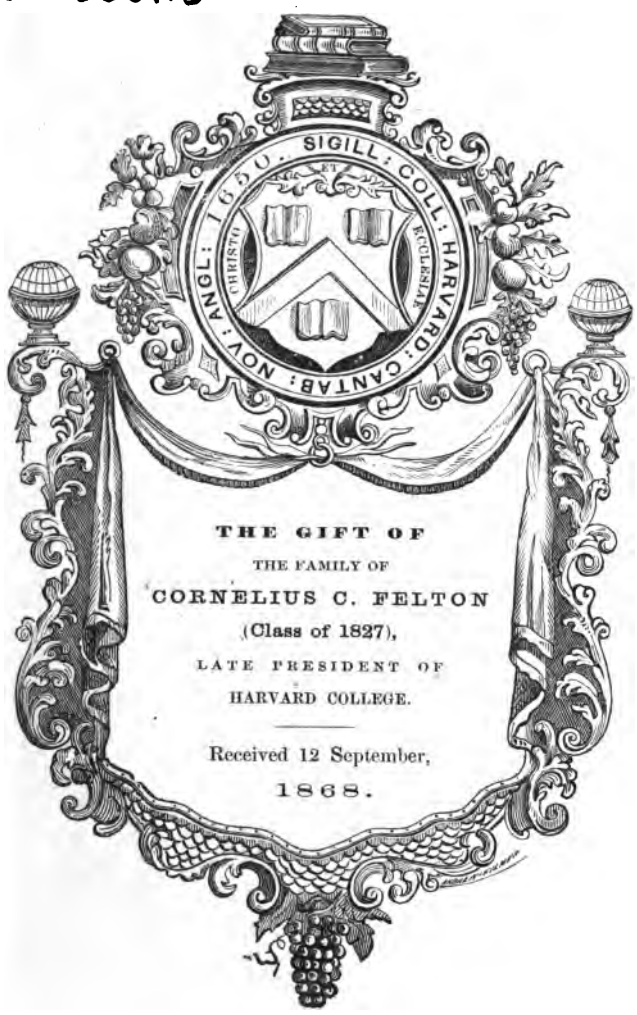
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LOGIC

IN ITS

APPLICATION TO LANGUAGE.

BY

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LONDON:

WALTON AND MABERLY,

UPPER GOWER STREET, AND IVY LANE, PATERNOSTER ROW.

1856.

Phil 5051.3

1868, Sept. 12
1868
President Nelson's Library

LONDON: PRINTED BY WOODFALL AND KINDER,
ANREL COURT, SKINNER STREET.

PREFACE.

THE title of the present work is by no means unexceptionable. So sensible, indeed, is the Author of the objections that lie against it, that he is the first to take notice of them.

Instead of passing for a work upon Logic as Applied to the Study of Language, the following pages should be considered as an exposition of that amount of Grammar and Philology which applies to Logic. In other words, the view suggested by the term should be reversed. The Language should lead to the Logic, and not the Logic to the Language. The true relations of the two subjects to each other make a certain amount of the one a preliminary or introduction to the other. This preliminary, however, lies in the phenomena of Speech. These lead to Logic, but not *vice versâ*.

Why, then, does the present treatise give us, as far, at least, as its title goes, precisely the reverse of this doctrine? Why does it treat Logic as the preliminary and Language as the subject to which it conducts us?

“So much must be known of the elements of

Logic, in order that the common terms of Grammar may be understood."—So runs the import of our title-page.

"So much of the elementary facts of Language must be known before the study of Logic commences."—So runs the real fact.

So runs the real fact—at least, in the eyes of the present writer, and many like him who hold that, in strict language, Logic begins with the syllogism, and that the structure of *single* and *unconnected* propositions is no portion of that science—that science dealing less with propositions themselves than with the relations which, under certain circumstances, and with certain combinations, they bear to each other.

The nature of the single, or unconnected proposition must, of course, be known. It is submitted, however, that the knowledge of this is to be got from the study of Language as applied to Logic.

To this, however (as has been stated), the import of the present title-page runs directly contrary. Nor is the opposition difficult of explanation, provided the commonplace and practical character of the treatise be borne in mind. It is the wish of the writer to avail himself of an old name for a somewhat new study—the old name being *Logic*.

Now Grammar being taught early, and Logic (if taught at all) late, the effect of such a title as Language applied to Logic, would be to engender the notion that the work wherein the application was exhibited was for adults rather than boys and youths. Its real object is the reverse of this. Its real object is to get certain so-called points of Logic studied as early as the elements of Grammar.

If the term *Logic* be a misnomer, the reason for its use lies in the contrast between the practice of the ordinary grammarians and the logicians. Of the former, many admit that the nature of terms and copulas, along with the structure of the proposition, is a matter which lies within their own jurisdiction. On the other hand, there are plenty of logicians who treat everything anterior to the syllogism as phenomena, not of Logic, but of Language. The practice, however, nowhere, or but rarely, coincides with the theory. Look in an ordinary grammar for anything about propositions, and, in ninety-nine cases out of a hundred, you will look in vain. It is in the books upon Logic that you will find them. At the present moment I remember but one grammar written in English, and written for the practical purpose of teaching a foreign language rather than with a strictly scientific view, wherein the truly grammatical phenomena of the structure of propositions are exhibited. This is Dr. Lee's Hebrew Grammar; and even here the notice is short, and appears no earlier than the first page of the Syntax. Throughout the Etymology no word about propositions is spoken. I repeat, however, that in thus limiting the grammars that treat of a proper grammatical Logic, I speak from memory. There may be many others. Nevertheless—whether many or few, they bear but a small proportion to those which relegate the subject to the domain of the logician.

And *he* always supplies them. Yet they are not his own wares; and he would manifestly and advantageously disencumber his subject of more than one unnecessary appendage if, presuming the gram-

marians to have cultivated their own domain up to its true boundary, he supposed, on the part of his reader, a knowledge of Terms, Copulas, Propositions, Names, and the like, and began his own subject where the preliminaries supplied by another ended.

Enough, however, of the remarks upon the title of the work. The work itself is by no means an ambitious one. Saving the sections upon the convertibility of the pronoun, and those wherein the connotation of Names is quantified, it contains next to nothing of original matter. The importance, however, of these I place high, especially as elements in the Natural History of Language.

This is a sea upon which, if I consulted my inclinations only, I would willingly launch. But the mass of detail is enormous, whilst the principles of criticism that should regulate its construction are but faintly foreshadowed. Nevertheless, whenever such a Natural History is attempted, the remarks just alluded to will find their place.

So far as they do this the present treatise contains materials connected with the advancement rather than the mere diffusion of knowledge. In all other respects, however, it is educational rather than scientific, advertising and promulgating what is known rather than investigating and illustrating the unknown.

The line of study to which it is more especially preparatory, so far as it deals with Logic *per se*, is easily seen, inasmuch as it manifests itself transparently through the names of the authors most especially quoted, and the nature of the (perhaps) over-abundant extracts. These point to the writers

who, above all others, have within the last few years carried Logic beyond the point where its revivers (by whom I mean the school to which Archbishop Whately has been the Coryphæus) left it—Mill, in his *System of Logic*; De Morgan, in his *Formal Logic*; Boole, in his *Laws of Thought*; and Sir William Hamilton, in his *Discussions on Philosophy* and his edition of the Works of Reid.

I repeat the statement that the present treatise is written for young students. And here the title *Logic* has its disadvantage. To many it conveys the idea of something subtle, metaphysical, difficult, sophistical, and the like; something useless, or worse; something quite as difficult as profitable—difficult, at least, to students of an early age and uncultivated understandings. To those who think loosely enough to think thus, the idea of boys being employed upon what they may choose to call *chopping* Logic must be ridiculous.

Be it so. I wish the name were more popular. Popular, however, or unpopular, it is one with which even the unlearned are acquainted. That Logic is neither nonsense nor sophistry I shall not attempt to show. I shall only ask how far it is *difficult*—difficult for young students, too difficult for being taught in schools.

Many of the studies of youth are held to be adapted to the youthful capacities not so much because they are more or less easy, but because they happen to be taught. When such is the case, the particular branch of education is not taught because it is easy but is easy because it is taught. Where there are many teachers, methods of instruction improve, simply from the practice of

communicating knowledge being general. Opinions upon points connected with it become interchanged. Errors have a tendency to become exploded. Ideas are ventilated ; the result being that subjects lose much of their difficulty when they lose their novelty.

This is not the case with Logic and its allied subjects. There is no trained body of teachers, no series of explanatory books, no *Logic made easy*.

The exact time of life for the study of elementary Logic is not to be given in years and months. The age, however, at which ordinary grammar, as it is usually taught, is *understood* is the time of life at which anything conveyed by the forthcoming pages can be understood also. How far the meaning of such words as Substantive, Adjective, Noun, Concord, and the like, along with the so-called rules of Orthography, Etymology, Syntax, and Prosody, is actually understood, teachers in schools and classes know better than I. They have, doubtless, too good reasons for teaching them, even when *not* understood ; as is too often the case.

Now what I hold respecting the logical part of Language as compared with Grammar as usually taught is this—

1. That, as far as the thing taught is to be understood, Terms and Copulas are no whit more unintelligible or difficult than Nouns and Verbs.

2. That if the memory is to be appealed to without the understanding, the appeal may as well be made for Logic as for Grammar.

This means that where Grammar can be taught, Logic can be taught also, the one subject being in

reality no harder or more inaccessible than the other.

The real amount of thought is much the same on both sides ; indeed, the thought is of the same kind. It results in the analysis of what we say or write, and the observation of what we think. The terminology certainly is the easier in Logic. The logical terms remarkable for either their length or exotic origin are only three in number—Categorematic, Syncategorematic, and Hypercategorematic ; and these may (at first), by a little management on the part of the teacher, be dispensed with. Of the remainder, the list is but short. It consists of—

| | |
|--------------|-----------------|
| Subject, | Concrete, |
| Predicate, | Abstract, |
| Copula, | Denotation, |
| Term, | Connotation, |
| Proposition, | Summum Genus, |
| Substance, | Infima Species, |
| Attribute, | Subaltern, |

and a few others less distantly removed from the language of common life. Will any one say that these are more difficult of either explanation on the part of the teacher, or remembrance on the part of the learner, than the longer and more technical list, consisting of names like—

| | |
|--------------|---------------|
| Article, | Adverb, |
| Substantive, | Preposition, |
| Adjective, | Conjunction, |
| Noun, | Interjection, |
| Pronoun, | Copulative, |
| Verb, | Disjunctive, |
| Participle, | Indicative, |

| | |
|----------------|--------------|
| Imperative, | Potential, |
| Infinitive, | Conjunctive, |
| and the like ? | |

If Logic be too difficult for beginners, Grammar is too difficult also.

It is submitted, however, that the real difficulties lie in the facts already alluded to, viz. the slight extent to which the subject has been made a branch of *early* education ; the intrinsic difficulties of the subject being but small.

The sections whereof the numbers stand in parentheses (56), need not be attended to at the first reading.

CONTENTS.

PART I.

PROPOSITIONS.

| | PAGE |
|--|------|
| § 1. Statements, Assertions, Declarations, or Propositions | 1 |
| § 2. Two parts, members, or constituent elements necessary to the structure of Propositions.—The two SOMETHINGS | 6 |
| § 3. The third Part, Member, Element, or Constituent of Propositions—the word IS | 9 |
| § 4. IT is coming | 10 |
| § 5. LOAVES ARE dear, &c. | 11 |
| § 6. I AM coming, &c. | 11 |
| § 7. A Proposition consists of three Parts, and no fewer | 12 |
| § 8. Apparent exceptions | 13 |
| § 9. A Proposition consists of Three Parts, and no more.—Apparent exceptions | 15 |
| § 10. Propositions Affirmative or Negative | 16 |
| § 11. Special names of the three Parts, Members, Elements, or Constituents of a Statement, Assertion, Declaration, or Proposition—Subject, Predicate, Copula | 18 |
| § 12. Order of the three Parts, Members, or Elements, of a Proposition—Copula in the middle | 19 |
| § 13. General name for Subject and Predicate—Term | 21 |
| § (14.) Remarks on the Copula.—Apparent absence of a Predicate | 22 |
| § (15.) Remarks on the Copula.—Division between the several Parts of a Proposition.—Incidence of the Negative Element.—Negative Predicates (?) | 23 |
| § (16.) Differences between the logical and philological view of Propositions | 27 |
| § 17. Questions | 31 |

| | PAGE |
|---|------|
| § 18. Questions of appeal | 33 |
| § 19. Commands | 34 |
| § 20. Grammatical Propositions of three kinds—declaratory, interrogative, and imperative | 35 |
| § 21. Practice in columns.—Words capable of forming, by themselves, Terms | 35 |
| § 22. Practice in columns.—Words capable of forming Predicates, but not capable of forming Subjects | 37 |
| § 23. Practice in columns.—Words capable of forming both Subjects and Predicates | 39 |
| § 24. Practice in columns.—Words capable of forming both Predicates and Copulas | 40 |
| § 25. Practice in columns.—Words capable of forming only parts of Terms | 42 |
| § 26. Propositions Universal or Particular | 46 |
| § 27. Many-worded Terms | 49 |
| § 28. Many-worded Copulas.—Negative element compound | 57 |
| § 29. Propositions isolate or connected—THEREFORE | 57 |
| § 30. Propositions isolate or connected—BECAUSE | 60 |
| § 31. Propositions isolate or connected—IF—AND | 60 |
| § 32. Propositions isolate or connected—AS (or SINCE), FOR, THEN | 61 |
| § 33. Propositions isolate or connected—BUT | 62 |
| § (34.) Sketch of the structure of the Ordinary Syllogism—its mechanism | 62 |
| § (35.) Structure of the Ordinary Syllogism.—Combination of Propositions.—Mood | 71 |
| § (36.) Structure of the Ordinary Syllogism.—Combinations of Terms.—Figure | 75 |
| § (37.) Structure of the Ordinary Syllogism.—Combinations of Propositions and of Terms considered together.—Mood and Figure | 77 |
| § (38.) Structure of the Ordinary Syllogism.—White.—Socrates.—Some | 80 |
| § (39.) Structure of the Ordinary Syllogism.—Quantity or Extent of the Predicate | 83 |
| § (40.) Operations on the Ordinary Syllogism—Strengthening and Weakening | 85 |
| § (41.) Operations on the Ordinary Syllogism—Conversion and Reduction | 86 |

| | |
|--|-----|
| § (42.) Structure of the Syllogism illustrated by treating its Terms as the Names of Classes.—Is equivalent to INCLUDED IN | 87 |
| § (43.) Structure of the Syllogism.—Symbolic Representation of Terms by means of Letters | 89 |
| § (44.) Propositions Categorical or Hypothetic | 96 |
| § (45.) Mnemonics | 97 |
| § (46.) Analysis and Synthesis | 101 |
| § (47.) Rationale of the Ordinary Syllogism.—Its Terms viewed as the Names of Classes.—The DICTUM DE OMNI ET NULLO | 104 |
| § (48.) Rationale of the Ordinary Syllogism.—Its Middle Term viewed as a Measure | 108 |
| § (49.) Rationale of the Ordinary Syllogism.—Its Terms viewed as expressive of the co-existence of certain Attributes | 109 |
| § (50.) Rationale of the Ordinary Syllogism.—The Middle Term always in the Premises, and never in the Conclusion | 111 |
| § (51.) The Place of the Middle Term in the several Figures.—The Figures four in Number | 114 |
| § (52.) The Moods.—Mood and Figure.—A Real and Rational Relation of the Middle Term essential to the Perfection of the Syllogism | 118 |
| § (53.) The Mnemonics.—What is meant by their Consonants.—Reduction | 122 |
| § (54.) The Middle Term, as Contained and Containing.—Perfection of the First Figure | 129 |
| § (55.) Contained and Containing capacities of the Middle Term.—Predicates Containing, Subjects Contained, Terms | 130 |
| § (56.) Imperfection of the Second Figure.—The Middle Term not really Middle | 132 |
| § (57.) Imperfection of the Third Figure.—The Middle Term not really Middle | 133 |
| § (58.) Imperfection of the Fourth Figure.—The Middle Term not rationally Middle | 133 |
| § (59.) Recapitulation | 135 |
| § (60.) Rules | 137 |
| § (61.) The Ordinary Syllogism called Aristotelian | 138 |
| § (62.) Certain Aristotelian Syllogisms over-strong | 140 |

| | PAGE |
|---|------|
| § (63.) Certain Aristotelian Syllogisms over-strong.—Conclusions A FORTIORI | 143 |
| § (64.) Syllogisms in which both the Premises are Particular | 144 |
| § 65. Two, or more, Propositions disguised as one | 146 |
| § 66. Propositions as Parts of Terms | 147 |
| § 67. Extent to which Language consists of Propositions.—Extracts | 148 |
| § 68. Criticism | 153 |

PART II.

NAMES.

| | |
|---|-----|
| § 69. Names, Individual or Common | 158 |
| § 70. Individual Names, Singular | 160 |
| § 71. Individual Names, Proper | 161 |
| § 72. Common Names also called General | 162 |
| § 73. Collective Names | 162 |
| § 74. Individual Names essentially Singular | 163 |
| § 75. Individual and Common Names.—Names of Persons and Places | 164 |
| § 76. Individual and Common Names.—Necessity and Usefulness of Common Ones.—Extract | 167 |
| § 77. Common, General (Generic), and Subaltern Terms | 168 |
| § 78. Individual and Common Names.—Degrees of Generality.—Generic | 173 |
| § 79. Individual and Common Names.—The Extremes.—Infima Species and Individuals | 174 |
| § 80. Individual and Common Names.—The Extremes.—Summa Genera and the Universe | 175 |
| § 81. The Universe.—Positive and Negative Names.—Non-effective Negative Names | 177 |
| § 82. The Universe.—Its Limitations | 180 |
| § 83. The Universe.—Negative Names effective when it is limited.—Contraries | 181 |
| § 84. Negative Names.—Opposites.—Privatives | 182 |
| § (85.) I and Not-I.—Ego and Non-Ego | 184 |
| § 86. Substance and Attribute.—Abstract and Concrete | 188 |
| § 87. Substance and Attribute | 189 |

| | PAGE |
|--|------|
| § 88. Concrete Names the Names of Substances.—Abstract, the Names of Attributes | 193 |
| § 89. Abstract Names of different Degrees of Generality | 194 |
| § 90. Abstract Names, how far Individual | 195 |
| § 91. Attribute—why a better Term than Quality—Attribute of a Quantity | 196 |
| § 92. Attribute of Relation | 199 |
| § 93. Convertible Names | 201 |
| § 94. Notation (or De-notation) and Con-notation.—Individual Names not Connotative | 204 |
| § 95. Notation, &c.—Common Names connotative.—Characteristics, or essential Attributes | 209 |
| § 96. Difference of view respecting the characteristics of Classes | 211 |
| § 97. Relation between Names and Classes.—The Class growing out of the Name | 212 |
| § 98. Relations, &c.—The Name growing out of the Class | 214 |
| § 99. Classification | 214 |
| § 100. Definitions | 217 |
| § 101. Classification by Type | 219 |
| § 102. Equivocal Names | 220 |

PART III.

PARTS OF SPEECH.

| | |
|--|-----|
| § 103. Parts of Speech | 222 |
| § 104. Parts of Speech.—Number, Criteria, &c. | 223 |
| § 105. Parts of Speech.—Number of them | 223 |
| § 106. Parts of Speech.—Criteria | 224 |
| § 107. Parts of Speech.—Criterion, the Place of a Word in a Proposition.—Categorematic, Syncategorematic, and Hypercategorematic Words | 225 |
| § 108. Categorematics, &c. | 226 |
| § 109. Categorematics | 227 |
| § 110. Categorematic Words Subjective or Predicative | 227 |
| § 111. Categorematic Words Nominal (Subjective) and Quasi-Nominal (Predicative) | 228 |
| § 112. Names.—Convertible or Inconvertible.—Pronouns or Substantives | 230 |

| | PAGE |
|---|------|
| § 113. Pronouns Names of Substances.—How far Individual | 230 |
| § 114. Pronouns the Names of Substances.—How far Common | 233 |
| § 115. Pronouns the Names of Substances.—Simply Notative (Denotative).—The Attribute they denote that of Relation | 234 |
| § 116. Pronouns as compared with Proper Names | 236 |
| § 117. Pronouns as compared with Adjectives | 237 |
| § 118. Pronouns as compared with Abstracts | 239 |
| § (119.) Criticism.—Use of the Word Noun | 241 |
| § (120.) Criticism.—Plurality and Non-plurality of Attributes | 243 |
| § 121. The Attribute of Quantity.—Quantity a Relation | 246 |
| § 122. The Attribute of Quantity.—Cardinals and Ordinals | 247 |
| § 123. The Article | 249 |
| § 124. The Substantive | 254 |
| § 125. The Adjective | 255 |
| § 126. The Adjective.—Its relation to the Participle and the Verb.—States and Actions | 255 |
| § 127. The Verb | 261 |
| § 128. The Participle | 261 |
| § 129. Adverbs | 262 |
| § 130. Prepositions | 263 |
| § 131. Conjunctions | 264 |
| § 132. Yes and No | 265 |
| § 133. Interjections | 266 |
| § 134. Inflection | 266 |
| § 135. Inflection.—Number | 270 |
| § 136. Inflection.—Gender | 270 |
| § 137. Inflection.—Gender.—Of Pronouns | 271 |
| § 138. Inflection.—Degrees of Comparison | 271 |
| § 139. Inflection of Verbs.—Conjugation | 272 |
| § 140. Criticism | 273 |
| § 141. Determination of Forms by Inflection | 274 |
| § 142. Criticism | 275 |
| § 143. Pronouns and Participles as compared with Substantives and Adjectives | 276 |
| § 144. Recapitulation | 277 |
| § 145. Place of the Article | 280 |
| § 146. Development of Inflections.—Conclusion | 218 |

LOGIC AND PHILOLOGY.

PART I.

PROPOSITIONS.

1.

Statements, Assertions, Declarations, or Propositions.

§ The first subject that requires to be considered is the nature of statements, assertions, declarations, or *propositions*.

In order to understand what is meant by a *proposition*, let us suppose that two persons are talking together.

They talk about something. Let us suppose that they talk about *bread*.

Bread being the something concerning which they talk, what is it that they say about it?

Let us suppose that they say that it is *dear*.

They then make the statement, declaration, or assertion, that *bread is dear*, and this statement, declaration, or assertion, is, in the language of logicians and grammarians, a *proposition*.

B

Let us now suppose their conversation to have been heard by some third person, and reported to a fourth, and that the two, on their part, talk it over after the following fashion:—

DIALOGUE.

A. What was said by the two men you saw just now?

B. A great deal. They talked together more than an hour.

A. What did they say?

B. More than I can remember. I only know that they talked about something or other. One of them talked about *bread*.

A. What did he say?

B. Something that I did not quite understand, but which was contradicted by the other.

A. What did *he* say?

B. Something that the other disapproved of.

A. So all that you can tell me is, that they talked about *something*?

B. Aye! and *that* something was bread.

A. And that they said *something* about it?

B. They said a good deal about it; and as fast as one said something one way, the other said something another way.

A. Did either of them say that it was *dear*?

B. Yes.

A. And did the other say that it was *cheap*?

B. He did.

So end the two conversations which four imaginary speakers have made for the sake of illustrating the nature of a proposition. We might have made two serve our purpose. Four, however, make the matter somewhat clearer. We might, indeed, have done with only one, for it

requires no great stretch of the imagination to suppose a single person talking to himself or writing ; in either of which cases he would be in a condition to form propositions. For the sake, however, of giving all the prominence possible to the essential and fundamental character of the proposition, the *Dramatis Personæ* were raised to the number of four.

Which of these speakers is right, and which wrong ? The one whose statement, assertion, declaration, or proposition, is true, is right ; and the one whose statement, assertion, declaration, or proposition, is untrue, is wrong. Common sense tells us this. There is a reason, however, for asking the question. It suggests the fact that propositions are, at least, of two kinds, either true or false ; the men who make them being right or wrong accordingly.

Which, then, of the two statements, assertions, declarations, or propositions, is true, and which untrue ? This is a question which we cannot answer, inasmuch as we do not know what particular bread is talked about, and, even if we did, we might not, ourselves, know the price of it. All we know is, that two persons, speaking about *bread*, make different statements.

But these statements are opposite, and contradictory to one another. Hence, we may fairly say, that, as both cannot be true, one of them must be the contrary, or untrue. Even this, however, is more than we are justified in asserting ; inasmuch as we are by no means certain that they both talk about the *same* bread. We have a notion that they do ; nevertheless, this notion is very far from

being a certainty. We have only learnt a part of the conversation, whereas, if we had had the whole, the result might have been that the bread which was declared *cheap* was the bread of one year, the bread which was declared *dear*, the bread of another.

We need not, however, go further in this question ; for it is not the price of bread that we are investigating, neither have we any interest in the comparative merits of the statements of our two speakers. Both may be right, inasmuch as they may be talking of different *breads* ; or both may be wrong, inasmuch as *bread* may have been neither *dear* nor *cheap*, but *moderate* in price ; or one may have been wrong, and the other right. We do not, however, care which of the two it was. Yet the price of bread is seldom or never a matter of indifference to either us or any one else. We may not, perhaps, either make or sell, but the chances are strongly in favour of our either buying it, or consuming it. Besides this, the political economists tell us, that the price of bread enters into the price of everything else. So that the question is anything but an indifferent one.

The fact, however, is, that the case before us is not one of either domestic or social economy at all ; but merely an illustration drawn from those departments of inquiry for another and a very different investigation ; an investigation which we have undertaken, not as millers, or bakers, or buyers of bread, or economists of any kind, but as *grammarians* ; and it is only with the eye of a *grammarian* that we look upon such sentences as the one under notice.

All propositions must be either spoken or

written by some one. They cannot make themselves ; neither are they self-existent. They are made in words by some one who uses language.

What do they convey? At the first view of this question, we are inclined to answer that they convey a *fact*. Yet this is not the case. A speaker may as easily put an incorrect statement in the shape of a proposition as a correct one. He may as easily say *gold is not yellow*, which is contrary to fact, as *gold is yellow*, which is a true and real fact.

Propositions, then, by no means convey facts : that is, they by no means necessarily and essentially do so. They *may* do so, but they do not do so on the strength of their being propositions.

Do they convey the belief, on the part of the speaker, that what he asserts is a fact? Not exactly ; though something like it. The same person who has said *gold is yellow*, may, immediately afterwards, and in the very next breath or sentence, say *gold is not yellow*. He cannot be said to believe *both* these assertions.

What a proposition conveys is this. It conveys what the speaker chooses to pass off as his belief ; so that it may give us something in which he really believes, or it may give us something that he does not believe in at all.

EXAMPLES.

1. *Man is mortal*.—This is true.
2. *Man is five-headed*.—This is false.
3. *Man is man*.—This is true, and something more. It is so true that it is unnecessary to be stated. It is a truism.

4. *Somebody is nobody.*—This is not only false, but impossible.

5. *Bread is dear.*—This, in the mouth of a person who believes, when he utters it, that bread is actually dear, is a real belief, and, if the price be actually high, it is a true fact. Again—

6. *Bread is dear.*—This, in the mouth of a person who believes, when he utters it, that bread is really cheap, is a simulated, or pretended belief, even if it be true as a statement.

All which instances serve to show that truths, falsehoods, truisms, wilful perversions of fact, mistakes, and, even, impossibilities, may form equally unimpeachable propositions; the proposition being considered only in respect to its grammatical character.

2.

Two parts, members, or constituent elements necessary to the structure of Propositions.—The two SOMETHINGS.

§ If we have clearly seen what is *not* essential to the structure of a proposition, we shall all the better understand what *is* essential to it.

There must be *two somethings*—the *something we speak about*, and the *something we say concerning it*.

In order to form an estimate of the value of these *two somethings*, let us try to form a judgment, or express some act of belief by a sentence (if so it can be called) in which one of them is

wanting. We shall find that it is no easy operation.

Suppose, for instance, that I say *the sun*. Here there is a distinct object before me, and before the person whom I address. But here the matter ends. We have a conception, an idea—each of us; but we have nothing more. What about the sun? What about its properties or its powers? Nothing whatever. What is said about it? Nothing. What is believed about it? Nothing. What is disbelieved about it? Nothing. There is no assertion made concerning it—nothing affirmative, nothing negative, nothing false, nothing true, nothing that I maintain, nothing that I deny, nothing that I pretend to believe in, nothing that I pretend to disbelieve in. How can there be? What can I say of it? What can I compare it to? What can I say it is? What can I say it is not? Suppose I make one of the simplest of all possible assertions, and say *the sun is existing*, or *the sun exists*. Even here there are two elements, or parts, one denoting *sun* and the other denoting *existence*. Suppose I say *the sun is the sun*. There are two somethings even here. Both (it is true) are expressed by the same word; and that makes the proposition a truism. Nevertheless, the parts, members, elements, or constituents of the sentence are two, and the sentence itself is a statement, assertion, declaration or proposition, consisting of *two somethings*, though not of two *different* somethings.

A truism, however, is the rarest kind of proposition. It will be well for the world when mistakes and untruths are equally so. In these, as well as in the ordinary statements of fact, the

two somethings are *different*. Contrast with sentences like—

Bread is bread,
Water is water,
Man is man, &c.,

such propositions as—

Bread is dear,
Bread is cheap,
Water is scarce,
Water is abundant,
Man is mortal,
Man is immortal,
Summer is coming,
Summer is departing,
Winter is cold,
Life is short,
Life is long,
Life is uncertain.

In each of all these sentences, and in each and all of the thousands that could be framed like them, the two questions that suggest themselves have different answers.

Thus :—

Q. *What do you talk about ?*

A. *Bread.*

Q. *What do you say that bread is ?*

A. *Dear, cheap, food, or anything else as the case may be.*

Should any doubts remain as to the absolute necessity of there being, at least, two parts, members, or elements to a statement, assertion, or proposition, they will disappear as we proceed.

3.

The third Part, Member, Element, or Constituent of Propositions—the word IS.

§ It now remains for us to ask whether these same parts, members, or elements of a proposition are *more* than two.

It is by no means impossible to frame an intelligible sentence out of the *two* elements which have been the subject of the foregoing remarks *alone*. Indeed, children do so very often. The child says *sun bright*, or *fire burn*, and is understood. So are the up-grown men of more countries than one, in the languages of which the third part, member, or element of a proposition is omitted.

It is not, however, the business of the men and women who use language to make propositions that are simply intelligible, or capable of being understood. It is their business to make propositions which cannot be misunderstood. And to do this, they must use something more than the words expressive of our two somethings.

No man can conclude to a certainty that, because he sees certain words in juxtaposition, they are in a given relation to each other. No man can conclude to a certainty that they are in any relation at all. He may, indeed, make a good guess; but he can do no more.

There is, then, a third part, member, or element, generally found in most propositions, and without which (as will be seen hereafter) many propositions cannot be constructed. This expresses, over and above the *two somethings* already men-

tioned, an intervening link *between them*. In all the previous examples, this part, member, or element, has been the word *is*.

4.

It is coming.

§ In all the examples hitherto given, the author has taken care to use words of which the meaning lies on the surface and is transparently clear and visible. There can be no doubt as to the meaning of such words as *bread*, *water*, *man*, *summer*, *winter*, &c.

Suppose, however, that, instead of expressing himself thus, he had written—

It is coming,
It is dear,
It is scarce, &c.,

what would have been the effect? No one would have known what *it* meant. Nevertheless, it would have denoted something, and that something would have been the thing spoken about; and the several sentences would have been propositions. They would have been propositions of which one of the parts, members, elements, or constituents, was unknown. Still, in form, at least, the sentences would have been propositions.

And a very little more would have made them clear and intelligible ones. Supposing, that, immediately before I said

It is coming—

I had been talking about *summer*, or immediately before I said

It is dear—

I had been talking about *bread*, all would, in that case, have been transparently clear, and the word *it* would have had a meaning—*bread* or *summer*, as the case might be.

5.

LOAVES ARE *dear*, &c.

§ In all the examples hitherto given, the author has used the word *is*, but he has done so only for the sake of clearness. He has chosen that the two *somethings* he said *something* about, should, each, be single objects. He might, however, have said—

Loaves are dear ;

or, he might, after speaking about loaves, have added—

They are dear.

6.

I AM *coming*, &c.

§ In all the examples hitherto given, the author has taken care to use the words *is* or *are*; but he has done it only for the sake of clearness and simplicity. Instead of using such examples as

Summer *is* coming,
Winter *is* departing,
Loaves *are* dear,

he might have said—

I *am* coming, wet, dry, &c.,
Thou *art* departing, tired, &c.

In both of these instances, the two somethings are in the same condition as they were before ; the word, however, which connects them, is different.

7.

A Proposition consists of three Parts and no fewer.

§ In every proposition, there are *three* parts, members, or constituent elements :—

(1.) (2.) (3.)
Summer is pleasant.

(1.) (2.) (3.)
Winter is cold.

(1.) (2.) (3.)
Life is short, &c.

To say *summer is—winter is—life is—&c.*, is to combine words to no purpose. The combinations convey no meaning.

To say *is pleasant—is cold—is short—&c.*, is also to combine words to no purpose. The combinations convey no meaning.

But, further, to say *summer—pleasant, winter—cold, life—short*, is to combine words to no purpose. The combinations convey no meaning ; at least, no clear, unequivocal, and necessarily intelligible meaning.

Each of the above-mentioned expressions is imperfect, and it may be seen *how* it is imperfect.

In the expression *summer is*, we have the name (*summer*) denoting the something concerning which we assert something ; and we have also the word denoting the existence of an assertion (*is*). What, however, that assertion *is*, is unexplained.

In the expression *is pleasant*, we find what was wanted in the previous one, viz., an assertion concerning something. The name, however, of this *something*, is unexplained.

Lastly, in the expression *summer—pleasant*, although we find both the name of the thing spoken of (*summer*), and the word which tells us what was said about it (*pleasant*), we find no word or sign by which we can tell whether this property, quality, or attribute of *pleasantness* belong or do not belong to *summer* ; in other words, there is nothing to show whether the idea expressed by the word *pleasant* apply to the word *summer* at all.

What are we to call these incomplete and imperfect combinations ? There is no very convenient name for them.

They scarcely rise to the rank of *sentences*. They are rather *utterances*, or *ejaculations*. At any rate, they are but imperfect sentences.

8.

Apparent exceptions.

§ In all the examples hitherto given, the author has taken care, that, whilst the number of parts in a proposition is not less than three, the number of *words* by which the proposition is ex-

pressed should be three also ; neither less nor more. But he has done this only for the sake of clearness ; only in order that the number of *words* and *parts* should agree. In the first three of his examples, the number of words might easily have been no more than *two*, and instead of

Summer is coming,
Winter is departing,
He is calling,

the propositions might have run thus :—

Summer comes,
Winter departs,
He calls.

Nay more, if instead of writing English, he had been writing Latin, the whole of the third and fourth propositions might each have been packed up in a single word. The Latin for

He calls, is Vocat.

The Latin for

He is called, is Vocatur.

Hence, although no proposition can consist of less than three parts, members, or elements, many propositions may be expressed by less than three words, viz. by two, and in some cases by only one. In the English language, however, this extreme abbreviation in the expression of a proposition is uncommon. We generally in English require at least *two* words for our propositions.

9.

A Proposition consists of three Parts and no more.

Apparent exceptions.

§ In all the previous examples, the author took care that, whilst the number of the parts, members, or elements of the propositions was no *more* than three, the number of the words by which the proposition was expressed should also be no more than three. He did this, however, only for the sake of clearness and simplicity; for it is very evident that the number of words in every one of his examples might have been increased, and that without violating the idiom of the English language. How easily, for instance, might some of them have begun with the word *the*:—

The summer is coming,

The winter is departing.

How little would the other propositions have been affected, if, instead of simply saying,

Bread is cheap,

Life is short, &c.,

we had said,

Some bread is cheap,

Human life is short,

All iron is useful, &c. ;

or (adding somewhat more to the complexity of the proposition),

Some bread is very cheap,

Human life is comparatively short,

Iron is always useful for some purpose,

An axe of good strong iron is useful in
the backwoods of America.

And so on, with other examples easily framed.

10.

Propositions Affirmative or Negative.

§ In all the previous examples, we have had a statement of a very clear and definite kind ; and we have not only had a very clear and definite statement or assertion, but that statement or assertion has been what is called *affirmative*. The supposed speaker has said

Bread is dear,
Water is scarce, &c.

But it by no means follows that, because he says so, the fact should agree with his statement ; still less that all the world should agree with him. On the contrary, we are at liberty to bring another speaker on the stage, and to make him express a series of statements or assertions diametrically opposite to those of our first *dramatis persona*. Thus, when *A* says,

Bread is dear,
Water is scarce, &c.,

let *B* say,

Bread is cheap,
Water is abundant, &c.

What takes place when this happens ? We get two opposition statements or assertions, declarations or propositions.

Now, although these statements or assertions are antagonistic or contradictory to each other, they are

both equally affirmative. They are both equally affirmative, though the one actually denies what the other states. The denial, however, is anything but direct. On the contrary, it is got at in a somewhat roundabout way. It is got at by making an affirmative assertion incompatible with the one to which it stands in opposition.

The man who says that *bread is cheap* leaves his hearer to infer that *bread is not dear*; and his hearer draws this inference without much difficulty, because he knows at once that a thing cannot be cheap and dear at the same time. It cannot, at one and the same time, be something and its opposite. And, *vice versâ*, the speaker who commits himself to the doctrine that *bread is cheap*, means to say that it is *not dear* on the same principle. It cannot be two things at once. Thus, whilst one denies that bread is *dear*, and another that it is *cheap*, neither of them expresses his denial in the form of a negative. They only leave a negative to be inferred.

But what if, instead of thus meeting one affirmation by another, they had recourse to the little word *not*? In this case, one of the two words *dear* and *cheap* could be dispensed with; for it would be sufficient to say,

Bread is *not* cheap,

instead of

Bread is dear;

or,

Bread is *not* dear,

instead of

Bread is cheap.

In this case, too, we should have a truly *negative* assertion.

By changing *is* into *is not*, *are* into *are not*, *am* into *am not*, &c., we can convert an affirmative into a negative proposition ; and, *vice versâ*, by ejecting the word *not* in such combinations as *is not*, *am not*, *are not*, &c., we can make a negative proposition affirmative.

Now *is* or *is not*, be it remembered, is the element which connects the two *somethings* that constitute, on one side, the subject of our discourse, and, on the other, the something said concerning it.

What, then, is its function ? It shows whether the two somethings are conformable or unconformable with each other ; whether they coincide or differ, agree or disagree.

11.

Special names of the three Parts, Members, Elements, or Constituents of a Statement, Assertion, Declaration, or Proposition—Subject, Predicate, Copula.

§ The something concerning which we make the statement, assertion, declaration, or proposition is called the *Subject*. Words like *man*, *summer*, *winter*, &c., are subjects, and we can assert of them that they are *mortal*, or *warm*, or *cold*, &c., or else the contrary, *i. e.* that they are *not mortal*, *not warm*, &c.

The assertion made concerning the subject, is called the *Predicate* ; so that *mortal*, *warm*, *cold*, &c., are predicates, and we can speak of certain things as being *mortal*, *warm*, *cold*, or the contrary.

The element which connects the subject and predicate is called the *Copula*. If the copula stand by itself, the proposition is affirmative; if it be accompanied by the word *not*, it is negative.

12.

Order of the three Parts, Members, or Elements, of a Proposition—Copula in the middle.

§ Enough has now been written concerning the *number* of the parts, members, or elements of propositions; enough, and perhaps more than enough, so ample has been the exposition of a question that, at first sight, seems sufficiently simple to be explained in a few words. Such importance, too, has been given to the number *three*, that it almost looks as if, after the fashion of the old cabalist philosophers, we found something mystic in it. Nevertheless, there are good reasons for the prominence that this number has assumed.

The question of *order* comes next.

In all the examples hitherto given, the subject has come first, the copula next, and the predicate last, just as if the sequence were invariable. Thus—

- | | | |
|------------------------------------|---|-------------------|
| 1. <i>Bread</i> (or <i>water</i>) | . | <i>Subject.</i> |
| 2. <i>Is</i> | . | <i>Copula.</i> |
| 3. <i>Dear</i> (or <i>scarce</i>) | . | <i>Predicate.</i> |

Such is the usual course in the English language, as well as in many others. In the English it is much more natural to say—

Water is scarce,

than

Scarce is water,

though the latter expression is by no means either unintelligible or impossible.' Even such a phrase as

Scarce water is

is imaginable.

There is no need, however, of going to these extreme and artificial forms in order to show that the usual sequence is by no means the only one. Even in English, it often suits the purpose of the rhetorician to transpose the predicate and the subject. Plain prose would say—

Diana of the Ephesians is great ;

but it is only the very plainest prose that would do so. Our fine translation of the Scriptures (as is well known) gives us—

Great is Diana of the Ephesians.

In Latin, even the copula may be final : *e. g.* *vocatus sum* = *I am called*. So it does in our own language, in such phrases as,

Proud I am.

As far, then, as the *ordinary* practice of the English language is concerned, the order of the parts, members, or elements of a proposition is regular ; so regular that we should not be far wrong if we talked of the *first*, *second*, or *third* propositional elements, instead of talking of *subjects*, *copulas*, or *predicates*. On the other hand, however, the *extraordinary* cases within the pale of our own language, along with the practice of many other tongues, imply that the sequence is really a matter of indifference.

But, although the order of the *words* may be indifferent, the order of the *ideas* that they express may be regular.

Again, although the order of the ideas may be indifferent, the inventors of the words Subject, Copula, and Predicate, may not have thought them so.. More than this, they may have framed their phraseology accordingly. Now this seems to have been the case. Whatever were the places of the subject and predicate, the copula stood between them ; for the meaning of the word copula is *link*, *union*, *tie*, or *connection*.

13.

General name for Subject and Predicate—Term.

§ The question of the order or sequence of the parts of a proposition brings us towards the introduction of a new word.

Terminus is the Latin for a *boundary*, *limit*, or *end*.

As the copulas stood between the subjects and the predicates of a proposition, the subjects and the predicates themselves must have stood at its two ends, limits, or boundaries. Which stood first and which stood last, which began the proposition and which ended, was a matter of indifference. It was enough that between them they gave it its limits ; that each was *non-medial*, *final*, or *terminal*.

And now we get a new word, in the shape of a general name for subject and predicate collectively—the word *term* ; a word of which we have

hitherto eschewed the use, writing *name* or *word* instead. Now, however, that its meaning has been explained, it will appear in almost every page of our treatise, and that frequently.

(14.)

Remarks on the Copula.—Apparent absence of a Predicate.

§ We have seen that a predicate, under certain conditions, can be something more than a predicate; *i.e.* a predicate and copula as well.

Can a copula, under any condition or modification, be anything more than a copula? Especially can it be a copula and predicate also? To this question many logicians say *Yes*. They say that *is* = *is existing* = *is an existence* = *is a being* = *is an entity*, or something of this kind, and that when the predicate implies simple *existence*, it can be expressed by the copula alone. Such is the case in the sentence *God is*, which is considered to consist of a subject and copula alone. To this view, several writers (Mill amongst them) object, and that very decidedly; arguing that a copula, as a copula, is merely a sign of predication, and nothing more. The instances, therefore, in question are merely instances of the ambiguity of the word by which the copula is expressed. The word *is*—a word which not only performs the function of a copula, but has a meaning of its own, by virtue of which it may itself be made a predicate—is not a copula which has enlarged its powers,

but the *sign* of the copula which has a double function.

Such an error as the one before us is best guarded against by bearing in mind the essentially *relative* character of the copula. All that it expresses, in any proposition, is agreement or disagreement between the two terms.

| | |
|------------|------------------------|
| Let A | stand for the Subject, |
| „ B „ | „ Predicate, |
| „ = „ | „ Affirmative Copula, |
| „ \neq „ | „ Negative Copula, |

and all such errors are avoided.

(15.)

Remarks on the Copula.—Division between the several Parts of a Proposition.—Incidence of the Negative Element.—Negative Predicates(?).

§ The present section is devoted to what may be called the *incidence of the negative element*. It will show that certain writers have divided the proposition into its three parts differently, the generality having referred the negative element to the copula, whilst some have connected it with the predicate.

a. By changing *is* into *is not*, we convert an affirmative into a negative proposition. This is how the statement stands in words.

b. By changing $=$ into \neq we convert $A = B$ into $A \neq B$. This is how the statement stands in symbols.

From this it follows, that it is the character of

the copula, that determines the character of the proposition ; the rules being that—

a. Affirmative copulas make affirmative propositions, and (*vice versâ*) that—

b. Negative copulas make negative propositions.

Such is the current doctrine. But it is clear, that a very little ingenuity may modify it. An affirmative copula with a negative predicate, will give us the same result as an affirmative predicate with a negative copula. Thus :—

Cæsar is not dead,

may be read either

Cæsar (is-not) dead, or—

Cæsar is (not-dead).

If this be true, the symbolic formula lately suggested, requires alteration. If so—

Let A stand for the Subject.

| | | | | |
|------|---|---|-------------|--------------|
| „ B | „ | „ | Affirmative | } Predicate. |
| „ B' | „ | „ | Negative | |
| „ = | „ | „ | Copula. | |

Here we get rid of \neq , but take B' in its place.

This difference of the distribution of the negative element of propositions has not obtained the assent of either the major or the most distinguished part of our recent writers.

EXTRACT.

“Some logicians state this distinction differently ; they recognise only one form of copula, *is*, and attach the negative sign to the predicate. ‘Cæsar is dead,’ and ‘Cæsar is not dead,’ according to these writers, are propositions agreeing not in the subject and predicate, but in the sub-

ject only. They do not consider 'dead,' but 'not dead,' to be the predicate of the second proposition, and they accordingly define a negative proposition to be one in which the predicate is a negative name. The point, though not of much practical moment, deserves notice as an example (not unfrequent in logic) where, by means of an apparent simplification, but which is merely verbal, matters are made more complex than before. The idea of these writers was, that they could get rid of the distinction between affirming and denying, by treating every case of denying as the affirming of a negative name. But what is meant by a negative name? A name expressive of the *absence* of an attribute. So that when we affirm a negative name, what we are really predicating is absence, and not presence; we are asserting not that anything *is*, but that something is *not*; to express which operation no word seems so proper as the word denying. The fundamental distinction is between a fact and the non-existence of that fact; between seeing something and not seeing it, between Cæsar's being dead and his not being dead; and if this were a merely verbal distinction, the generalisation which brings both within the same form of assertion would be a real simplification: the distinction, however, being real, and in the facts, it is the generalisation confounding the distinction that is merely verbal; and tends to obscure the subject, by treating the difference between two kinds of truths as if it were only a difference between two kinds of words. To put things together, and to put them or keep them asunder, will remain different operations, whatever tricks we may play with language."—MILLS, *Logic*, i. 4, § 2.

Now it is clear that this refinement on the ordinary view is made for the sake of simplicity. But is not the ordinary view made so too? And, if this be the case, is it not possible, that an undue sacrifice may have been made? It is transparently

C

clear that those who take the view of Hobbes (for it is to the view of that writer that Mill takes his exceptions), and those who take the other, admit but *one* formula, the doctrine on both sides being that *either* the copula or the predicate is negative, and that as a general rule. But is this assumption the true one? May we not err in looking towards simplicity too exclusively? What if Hobbes' view be the true one in some, the ordinary in other, cases? Propositions would then be less uniform in their construction, less simple in their form, and less manageable in their handling. Logic, in short, would be somewhat more complex. But this is no reason for ignoring a distinction, provided that the distinction be real. Generality and simplicity are good things, but they must not be bought at the price of facts.

The present writer suggests that, in philology at least, it may be inaccurate to hold that, because the negative belongs to the copula in *some* cases, it does so in *all*.

And it may be just as inaccurate to maintain that, because it *sometimes* attaches itself to the predicate, it is *essentially and necessarily* predicative.

He believes that negatives are sometimes what he would call *terminal*, and sometimes *inter-terminal*; terminal negatives belonging to the predicate rather than the copula, inter-terminals to the copula rather than the predicate.

As a philologue he goes farther still. He doubts whether it be in accordance with the phenomena of language to make the negative element of propositions a part of either predicate or copula. It certainly simplifies matters to say that the parts of

a proposition, whether negative or affirmative, are three, and no more than three; and that the one sort differs from the other simply in the different character of one of these three constituents. But what if the truer view be that the negative sign is no modification of any pre-existing element, but a fresh element altogether?

Certain languages dispense with the copula when it is affirmative; but not when it is negative. If we say *fire hot*, the word *is* may be supplied by the person spoken to, when we simply mean that the property of *heat* is connected with substance *fire*. But what if we deny this? We cannot leave the person spoken to to supply such a word as *not*.

(16.)

Differences between the logical and philological view of Propositions.

§ It may now be said that, if the logical form of a proposition be thus unsuited to the purposes of the grammarian, the grammarians and the logicians should part company, and that the former should find their own formula for their own propositions, making it no part of their business to attend to the view taken by the latter. In this there is much, but not, perhaps, enough to constitute the whole, truth. There is, doubtless, a certain amount of difference between the operations of the philologue and the logician; but there is also a very close connection, as we have seen already.

Nine-tenths of what has been written in the present treatise is as much a matter of logic as it is of language. Neither can anything easily be found con-

nected with the latter of these two subjects, which has not some bearing upon the former. It may, possibly, be wrong to say that our modes of speaking act upon our modes of thinking; in other words, that Thought *without* Language would be something different from Thought *with* Language. It would not be expressed so as to be intelligible to a second person; nevertheless, it would be Thought.

Again, it may possibly be right to say, that language is limited to the *expression* of our thoughts (just as pictures express the objects they represent, and the letters of the alphabet stand as signs of certain sounds), and that language so limited has nothing to do but to take thought as it finds it, and put it in a form that shall communicate it to some one external to the sentient or thinker; the sentient or thinker being able to commune with *himself* without language, *i.e.* to think to himself without talking to himself.

All this may be true. Nevertheless, excellent logicians (and I believe a vast majority of them) hold that language is not only the expression of thought, but, to a certain extent, the instrument by which thought is formed.

EXTRACTS.

1.

“Logic is derived from a Greek word (λόγος) which signifies communication of thought, usually by speech. It is the name which is generally given to the branch of inquiry (be it called science or art) in which the act of the mind in reasoning is considered, particularly with reference to the connection of thought and language.”—DE MORGAN, *Formal Logic*, chap. ii.

2.

"Logic is a portion of the art of thinking. Language is evidently, and by the admission of all philosophers, one of the principal instruments or helps of thought; and any imperfection in the instruments, or in the mode of employing it, is confessedly liable, still more than in almost any other art, to confuse and impede the process and destroy all ground of confidence in the result. For a mind not previously versed in the meaning and right use of the various kinds of words, to attempt the study of methods of philosophising, would be as if some one should attempt to make himself an astronomical observer, having never learned to adjust the focal distance of his optical instruments so as to see distinctly."—MILLS, *Logic*, i. 1, § 1.

3.

"Here, therefore, we find a new reason why the signification of names, and the relation, generally, between names and the things signified by them, must occupy the preliminary stage of the inquiry we are engaged in.

"It may be objected, that the meaning of names can guide us at most only to the opinions, possibly the foolish and groundless opinions, which mankind have formed concerning things, and that as the object of philosophy is truth, not opinion, the philosopher should dismiss words and look into things themselves, to ascertain what questions can be asked and answered in regard to them. This advice (which fortunately no one has it in his power to follow) is in reality an exhortation to discard the whole fruits of the labours of his predecessors, and demean himself as if he were the first person who had ever turned an inquiring eye upon nature.

"What does any one's personal knowledge of things amount to, after subtracting all which he has acquired by means of the words of other people? Even after he has learned as much as men usually do learn from others, will

the notions of things contained in his individual mind afford as sufficient a basis for a *catalogue raisonnée* as the notions which are in the minds of all mankind?"—MILLS, *Logic*, i. 1, § 3.

4.

"That language is an instrument of human reason, and not merely a medium for the expression of thought, is a truth generally admitted. It is proposed in this chapter to inquire what it is that renders language thus subservient to the most important of our intellectual faculties. In the various steps of this inquiry, we shall be led to consider the constitution of language, considered as a system adapted to an end or purpose; to investigate its elements; to seek to determine their mutual relation and dependence; and to inquire in what manner they contribute to the attainment of the end to which, as co-ordinate parts of a system, they have respect.

"In proceeding to these inquiries, it will not be necessary to enter into the discussion of that famous question of the schools, whether language is to be regarded as an *essential* instrument of reasoning, or whether, on the other hand, it is possible for us to reason without its aid. I suppose this question to be beside the design of the present treatise, for the following reason; viz. that it is the business of science to investigate laws; and that, whether we regard signs as the representatives of things and of their relations, or as the representatives of the conceptions and operations of the human intellect, in studying the laws of signs we are in effect studying the manifested laws of reasoning. If there exists a difference between the two inquiries, it is one which does not effect the scientific expressions of formal law, which are the objects of investigation in the present stage of this work, but relates only to the mode in which those results are presented to the mental regard. For though in investigating the law of signs, *à posteriori*, the immediate subject of examina-

tion is language, with the rules which govern its use; while making the internal processes of thought the direct object of inquiry, we appeal in a more immediate way to our personal consciousness,—it will be found, that in both cases the results obtained are formally equivalent. Nor could we easily conceive that the unnumbered tongues and dialects of the earth should have preserved through a long succession of ages so much that is common and universal, were we not assured of the existence of some deep foundation of their agreement in the laws of the mind itself.”—BOOLE, *Laws of Thought*.

17.

Questions.

§ All statements, assertions, or declarations, are propositions.

Is the converse of this true?

Are all propositions statements, assertions, or declarations?

Up to the present stage of our inquiries, the three parts, members, or constituent elements of a proposition—the two *somethings*, and the link that joins them—the subject, predicate, and copula—have been considered from one point of view only.

Let us now, however, instead of saying

Bread is dear,

say,

Is bread dear?

Does this latter combination of words constitute a proposition?

It certainly has some of the elements of one, and those very important ones.

It contains the two words significant of the two *somethings*—*bread*, *dear*. It contains the word which connects them—*is*.

It contains all this, and it contains nothing besides. A chemist would say that a sentence like the one in question, gave us the same elements as the other, with a different arrangement.

Nevertheless, there is no assertion, no statement, no declaration; none, at least, of a direct and straightforward kind.

Instead of this, there is a *question*.

Now, at the first view, few things can be more unlike each other than a question and an assertion. The latter implies knowledge, the former the want of it. The latter contains a certain amount of information, real or supposed; the former seeks for such information; and for this reason, the chief works on logic have formally, and by name, excluded *Questions* from the class of propositions. All, however, that the grammarian says is, that a question is not an assertion, a declaration, or a statement. All that the grammarian says is, that whenever there is an assertion, a declaration, or a statement, there is also a proposition. He never says that wherever there is a proposition, there is also a statement.

The fact is, that in grammar, a Question is neither more nor less than a variety of the ordinary proposition, implying that the subject is something concerning which the speaker requires information; something unexplained, but not incapable of explanation; explanation that may possibly be supplied by the person spoken to.

The sentence—

What is this? = this is what?

What = something upon which information is requested.

It may be objected, however, that it is not the

habit of language to use such expressions as *this is what?* but, on the contrary, to prefer the form, *what is this?* All that need be said upon this point is, that it is not the *general* custom of the *English*, and *certain other languages*, to do so. The English, and certain other languages, transpose the predicate and subject when the proposition is a question; but there is no necessity for their doing so. It is merely a particular practice, and no general law of language.

A question, then, or interrogation, is only an ordinary assertional or declaratory proposition with its parts transposed.

18.

Questions of appeal.

§ There is a certain sort of question which is neither more nor less than a negative. When a person in extreme perplexity says, *What am I to do?* he often means that there is nothing that can be done. In like manner—

What do you say to that? means *You have nothing to say to it.*

Who would rely on the word of a convicted perjurer, or on the honour of a notorious cheat? Here, *who* means *no one*.

In questions of this kind, we not only appeal to the person spoken, as to whether such or such a fact is true, but we imply our own belief to the contrary; in which case our last example means, *I know of no one who relies on the word and honour of perjurers and cheats, and have a strong conviction that no one does do so.*

* * * * *

"The miserable Sporus is too vain and frivolous a thing to be the object of either advice or anger. No one uses a wheel to break a butterfly."

Such the plain prose ; but not so the verses of Pope :—

"Satire or sense can wretched Sporus feel?
Who breaks a butterfly upon a wheel?"

Again :—

"Or* hear'st thou rather pure ætherial stream,
Whose fountain *who* can tell?"

Paradise Lost.

Who = *no one*.

Questions of this kind are called *Questions of Appeal*.

19.

Commands.

§ At the first view, few things can be more unlike each other than an assertion and a command ; indeed, it may be admitted, that the propositional character of commands is less clear than that of questions. Words like *walk, stand, &c.*, convey neither an affirmation nor a denial, as a matter of direct assertion. Nevertheless, they are essentially affirmative, and, by attaching to them the word *not*, can be made negative : *walk not, stand not, fear not, eat not, drink not, do not*.

Again—

Walk = *thou be walking.*

Stand = *thou be standing.*

Eat = *thou be eating, &c.*

And what is *thou* but a subject, *be* but a copula, and *walking* but a predicate?

* This means, *Do you hear as your name? art thou called?*

20.

Grammatical Propositions of three kinds—declaratory, interrogative, and imperative.

§ A proposition that conveys an assertion, statement, or declaration, is called a *declaratory* proposition. It may also be called an *assertional* one.

A proposition by which we ask a question is called an *interrogative* proposition.

A proposition that conveys a command is called an *imperative* proposition.

The grammarian recognizes all these three varieties as propositions. The logician recognizes the first only. Questions and commands he excludes. In his eyes there is no proposition where there is no declaration or assertion.

21.

Practice in columns.—Words capable of forming, by themselves, terms.

§ Peruse the following columns, noting that they are marked 1 and 2.

Draw a line sufficiently long to have three words written on it.

Take any word from list 1, and write it on the *left* end of the line.

Take any word from list 2, and write it on the *right* end of the line.

Insert between the words thus written the word *is*.

Before the *left-hand* words, put *a*, *an*, or *the*, if necessary to make sense.

LIST 1.

| | | |
|----------|-------------|------------|
| man | bow | wealth |
| woman | arrow | happiness |
| child | dart | goodness |
| father | spear | strength |
| mother | fishing-rod | length |
| son | fisherman | air |
| daughter | hunter | fire |
| horse | shooter | water |
| mule | lioness | body |
| dog | book | soul |
| ox | pen | atmosphere |
| ass | ink | firmament |
| fowl | paper | sun |
| bird | virtue | sky |
| egg | vice | essence. |

(2.)

| | | |
|-------------|-------------|------------|
| good | deep | shooting |
| bad | broad | shining |
| indifferent | long | weeping |
| big | short | groaning |
| little | fierce | blazing |
| great | happy | laughing |
| small | virtuous | thinking |
| black | vicious | standing |
| white | manly | conquering |
| red | womanly | conquered |
| green | childish | hunted |
| hot | fatherlike | moved |
| cold | bodily | beaten |
| weak | atmospheric | drifted |
| strong | essential | sifted |
| high | personal | driven. |

The lines will then run thus :—

Man is good, &c.,
 A child is little,
 The bow is small,
 The woman is thinking,
 The water is beaten, &c., &c.,

in any sort of combination or to any number.

Or we may throw the two lists into two columns, the former on the left, the latter on the right side of the paper, and connect the two by *is*, writing—

| | | | | |
|-----------|---|----|---|------------------|
| The man | } | is | { | good, |
| The woman | | | | bad, |
| The child | | | | indifferent, &c. |

In each and all of these instances, we have a proposition—a proposition with its subject at the beginning (or on the left-hand side as we write), its predicate at the end (or right-hand side), and its copula between them (or in the middle).

Some of these propositions are false, improbable, and even impossible. Nevertheless, they are all propositions, grammatically constructed, and accurate in form. And this is all that need be.

22.

Practice in columns. — Words capable of forming Predicates, but not capable of forming Subjects.

§ The previous lists have shown us that there is a certain class of words which can constitute the subjects of propositions.

They have also shown that there is another class which can constitute the predicates.

Can the same words constitute *both* subjects and predicates?

Let us answer this by again operating on our lists.

Reverse the order of the columns by writing the words of No. 2 on the left-hand side of the paper, and those of No. 1 on the right.

Good is man,
Little is child,
Small is bow,
Thinking is woman,
Beaten is water, &c., &c.

Are these sentences grammatical? Do they constitute propositions? No. It may be said that they are intelligible, and that, if interpreted so as to be made so, they would be no more untrue, improbable, or impossible than some of the acknowledged propositions of the previous section. It may be said, for instance, that *good*, *little*, *small*, &c., mean a *good thing*, a *little thing*, *goodness*, or *littleness*, &c., and that

Goodness is (a) man,
Littleness is (a) child, &c.,

are propositions. The qualities in question may, it may be said, have been personified, so that Goodness may be a man, just as Britannia is a woman, or Cupid a boy. All this may be the case; but if it be so, the words must have changed their mean-

ing. In the plain unvarnished language of common sense no one will say that

Good is man

is a proposition in the same way as

Man is good

is one.

Again, it may be said, that combinations like *good is man*, are combinations like one already quoted, viz. *great is Diana of the Ephesians*, which is the same as *Diana of the Ephesians is great*. This, however, is by no means an instance of the word *great* being used as a subject. It is only an instance of the usual order of the subject and predicate being reversed.

We may, then, safely say there is a certain class of words—words like those in No. 2—which can form the predicates of propositions, but not the subjects. And this gives us a partial answer to the question with which we commenced, viz. Can the same word constitute *both* subjects and predicates?

Answer. Whatever may be the case with the words of No. 1, the words of No. 2 have no such double power. They constitute predicates only.

23.

Practice in columns.—Words capable of forming both Subjects and Predicates.

§ This answer, however, is only partial, inasmuch as it applies only to the words of List 2. What can those of List 1 do? They can certainly form *subjects*. This we have seen. Can they also

form *predicates*? They can. They can do two things at once. Operate on the columns, and you will see that this is the case.

A man is a man ;

this is a truism. Nevertheless, it is a proposition.

A man is a woman ;

this is an untruth. Nevertheless, it is a proposition.

Insert the word *not*, so converting the affirmative into the negative.

A man is not a man ;

this is no longer a truism, but an untruth.

A man is not a woman ;

this is no longer an untruth, but a truism.

An egg is food,

Vice is not virtue ;

these are truths. All, however, are propositions.

And now our question is answered altogether.

Question. Can the same words constitute both subjects and predicate?

Answer. The words of No. 2 can constitute predicates only ; but the words of No. 1 can constitute subjects and predicates both.

24.

Practice in columns.—Words capable of forming both Predicates and Copulas.

§ From List 2, select all the words ending in *-ing*, as *think-ing*, remembering that they had

the property of being able to form predicates—not subjects, still less subjects and predicates as well—but only predicates.

Form a certain number of propositions with them,

The woman is thinking, &c.

Separate the syllable *-ing* from the syllable that precedes it by a hyphen—

The woman is think-*ing*.

Write *-s* instead of it, and omit the word *is*.

The result is a series of propositions of the following form :

The woman thinks, &c.

In these propositions which is the subject? The words *woman*, &c.

And which the predicate and copula? The words *thinks*, &c. They are predicates and copulas at once.

Mutatis mutandis, the same applies to the words in *ed* and *en*, *conquered*, *beaten*, &c.

The hunter is conquered,
The fisherman is beaten,

or

The hunter is conquer-*ed*,
The fishermen is beat-*en*,

or

The hunter conquer-*s*,
The fisherman beat-*s*,

or

The hunter conquers,
The fishermen beats, &c.

The following words, amongst others, are capable of forming by themselves both a predicate and a copula at once.

| | | |
|---------|---------|----------|
| eat | teach | shoot |
| drink | learn | shine |
| speak | read | weep |
| breathe | write | groan |
| live | worship | blaze |
| die | petrify | laugh |
| fear | boil | think |
| hope | ride | stand |
| love | walk | conquer |
| see | sigh | simmer |
| hear | hunt | astonish |
| feel | fish | pine |
| hunger | impeach | beat |
| mock | drive | drift |
| stain | move | sift. |

25.

Practice in columns.—Words capable of forming only parts of Terms.

§ The examples of propositions hitherto given have been of either the simplest form possible, or very simple. They have rarely consisted of more than three words, and even when they have done so, the additional word has generally been either *an* (*a*) or *the* ; as—

An eagle is a bird ; or—

The man is good, &c.

Sometimes, however, it has been *some*, and *all* ; whilst in § 9, for the sake of showing that it was

by no means necessary for a proposition to be absolutely simple, we find such ones as—

Human life is comparatively short,
 Iron is always useful to man,
 An axe of good iron is very useful in the
 backwoods of America.

Examples of this kind may be multiplied indefinitely. They are examples of comparatively, though not of absolutely simple propositions.

Analyse them, and classify the words of which they consist.

In doing this, first find the terms.

This we do by finding the copula—*is*.

The words to the left of it (for we still proceed mechanically) form the subject: the words to the right of it the predicate.

SUBJECTS.

PREDICATES.

| | | |
|------------|--------|--------------------------|
| Human life | } is { | comparatively short, |
| Good iron | | always useful, |
| An axe of | | very useful in the back- |
| good iron | | woods of America. |

Now, pick out from the terms of these three propositions all the words that find a place in either of the lists of the previous section. These will be *life*, *axe*, *iron*, *backwood*, and *America*, for the class capable of forming *either* subjects or predicates, and *human*, *good*, *short*, and *useful* for the class capable of forming predicates only. Verify this, if necessary, by constructing propositions accordingly.

The remaining words will be *an*, *the*, *comparatively*, *always*, *very*, *in*, *of*.

To see whether any of these words, *by themselves*, will form either subject or predicate ; *i.e.* write *is* in the middle of a line, and the words in question on either side of it.

The *is* comparatively,
Comparatively *is* the,
In *is* very,
Very *is* in, &c., &c.

Ring what changes we may upon them, the result is the same ; or rather the no-result is the same. No proposition is created ; and this is because the words in question, though capable of forming *parts* of either a subject or a predicate, cannot form a *whole one*.

The previous examples have shown something more. They have shown that it by no means follows, that because a word can, by itself, constitute the whole of a term, it cannot, therefore, constitute a part of one. *A, the, in, very, &c.*, can constitute parts of terms only ; *iron, good, &c.*, can constitute whole terms, but they can constitute parts of terms as well.

The words of our two lists—the words like *man, iron, good, useful, &c.*—were only a few out of many. There were many others like them. The same is the case with *a, the, very, comparatively, in, and of*. They are simply specimens or samples of a class.

The character of the class last under notice was, that the words which it contained (*man, good, &c.*) were capable of forming by themselves, and without the aid of other words, terms ; the terms thus formed being, of course, simple.

The character of the class now claiming consideration is, that the words which it contains (*a*, *very*, *in*, &c.) are not capable of forming, by themselves, but only with the aid of other words, terms; the terms thus formed are, of course, other than absolutely simple.

The class last under notice fell into certain divisions, one containing the words capable of forming *both* subjects and predicates; another, the words capable of forming predicates only; another, the words that formed predicates and copulas as well. Hence, whilst *man* and *good* agreed in the general character of being able, by themselves, to form terms, the terms that they severally formed were different.

The same applies to the class containing *a*, *the*, *very*, *in*, &c. They agree *generally*, i.e. they agree in the fact of their powers or functions being limited to the formation of parts of terms only. They differ in the particular parts of a term that they severally have the power, or function, to form.

They agree, however, generally.

a. Of this general class to which they all belong *a* and *the* form one division—a small one, for there are not many other words in the same predicament as these.

b. *Comparatively* and *very* form a second—the largest.

c. *In* and *of* form a third, intermediate in magnitude.

A further illustration of the characteristics of these three classes will be found in Part II.

26.

Propositions Universal or Particular.

§ It may, perhaps, have already struck the reader that the division of propositions into Negative and Affirmative, the only division hitherto made, has been insufficient. If so, he will anticipate the introduction of new terms, some of which may be, more or less, technical. And this is exactly what he will find. Propositions may be of any amount of simplicity or complexity. They may be three-worded, *i. e.* with no more words than elements, or they may extend over whole lines, and fill up moderate-sized pages.

In the following pair of propositions, one of which is negative and the other affirmative, it is more important to notice the likeness between them than the difference.

Swans are white,
Swans are not white.

All the parts here are clear. The words *swan* and *white* tell us what is meant by the subject and the predicate; the words *are* and *are not* give us the copulas. All, then, is clear—but only to a certain extent; for a little reflection will show us that there is still a piece of information wanting.

How many swans are white? *How many* swans are not white? This is what we have yet to be told. It *may* be that the whole class, genus, or group of swans—every individual bird belonging to it—is of the same colour, or it may be that only one *per cent.* thereof is so. What, in short, does the word *swans* mean? Does it mean *all* or *some*,

the whole of a class or the part of one? Does it mean *swans* universally, or *swans* partially? All that the wording of the proposition supplies us with is the statement that there is more than *one* swan which is white; more than one swan other than white. This we collect from the copula being *are* instead of *is*; and it is all that we do collect.

So that our notion of a proposition is still incomplete, and we still want a fresh class of words. Nor is it difficult to see what sort of words these must be. They must stand in the very closest juxtaposition with the subject. They must almost be part and parcel of the subject. They must combine or coalesce with the subject much in the same way that the negative combines with the copula. Whether they will be separate words, or words inseparably united, will depend upon circumstances.

The two chief words of this kind are *all* and *some*; as we may see by prefixing them to the two propositions under notice, and writing

All-swans are white,
Some-swans are not white.

By writing *all* or *some*, we know what we may call the *extent*, or *quantity*, of our proposition; *i.e.* we know how far the words *white* and *not white* extend to the class of birds called *swans*. We know that in the first proposition, they extend over the whole class; whereas, in the second, they extend over only a part of it.

To say that *some swans are white*, is to say that a portion, or *part*, of the class of birds called *swan* is endued with the property or attribute of *whiteness*—a portion, or *part*; not the whole. Some of

them may be brown ; some even black. What are we to call such an affirmative as this, an affirmative that applies only to a part of a class ? We are to call it a *Particular affirmative* ; just as we called the other a *Universal* one. If we choose, we may contrast these two sorts of propositions. We must remember, however, that they are both *Affirmative*.

The same difference presents itself, when we come to the *Negative*.

*No swan is white,
Some swans are not white.*

The first of which is an *universal*, the second a *particular, negative*.

There are, then, four sorts or species of propositions ; and these it is the business of the logician to arrange or classify. In doing this, he has his choice between two principles.

a. He may do as has just been done. He may make the primary divisions, *affirmative* and *negative*, each falling into the *universal* and *particular*, or sub-divisions, in which cases his table stands thus :—

| | | |
|----------------------|---|---|
| <i>Affirmatives.</i> | { | Universal— <i>All swans are white,</i> |
| | | Particular— <i>Some swans are white ;</i> |
| <i>Negatives.</i> | { | Universal— <i>No swans are white,</i> |
| | | Particular— <i>Some swans are not white ;</i> |

or,

b. He may make the division into *universal* and *particular* primary, and that of *affirmative* and

negative secondary. If he do this, his table stands as follows :—

| | | |
|--------------------|---|---|
| <i>Universal.</i> | { | Affirmative— <i>All swans are white,</i> |
| | | Negative — <i>No swans are white ;</i> |
| <i>Particular.</i> | { | Affirmative— <i>Some swans are white,</i> |
| | | Negative — <i>Some swans are not white.</i> |

Now, it is this latter arrangement which is the arrangement of the logician, in whose writings the sequence (which it is very important to remember) is—

1. Universal Affirmative,
2. „ Negative ;
3. Particular Affirmative,
4. „ Negative.

We now proceed to the consideration of—

27.

Many-worded Terms.

I should be glad to think that either the present work, or some work like it, was to be studied earlier than even the first rules of the ordinary grammars. But this is a thing to be desired rather than expected—*optandum magis quam sperandum*. Such being the case, I assume that the ordinary grammatical meaning of such words as *masculine*, *feminine*, *neuter*, and *gender*, is understood by the reader.

Now the old grammarians are in the habit of speaking of the relative value, dignity, or worth of these three genders. The "masculine," they say, "is more worthy than the feminine, and the feminine more worthy than the neuter." They generally proceed to show what this means by examples. I stop, however, here; using the words only as an illustration. For—

Just as one gender in grammar is more worthy than another, one class of words in logic has greater worth than its fellows. And it is evident where this greater worth or value lies. It is to be found with those words which can not only form, by themselves, and single-handed, *terms*, but *terms* of either kind. A word that can be both predicate and subject, may fairly be called worthier than one which can form a predicate only. A word like *sun*, for instance, is a worthier word (so to say) than a word like *bright*.

I shall often have to speak of these words, but, at present, we have no names for the classes to which they belong. To speak of words-which-can-form-both-subjects-and-predicates, and words-which-can-form-predicates-only, is somewhat inconvenient. We want a shorter term. But this we shall not get, until we reach the third part of our treatise, and it is not expedient to anticipate. What are we to call them? I shall take a word from each class, as a sample of the whole group; say *sun* and *bright*. Then for those that can form both *copulas* and *predicates*, I shall make *shine* stand as a specimen. Hence, the phraseology for the present section will be—

1. *Words like sun*—words that can be *either subjects or predicates*.

2. *Words like bright*—words that can be *predicates only* : and

3. *Words like shine*—words that can be *copulas and predicates*.

With this preliminary, we may investigate the nature of *many-worded terms*.

Before we have finished doing this, other classes of words will have to be treated in a similar manner. First—

The words by which we expressed the *extent* of propositions require notice;—*all, some, no*. These, for the present, may be looked upon as parts of the word which they precede, rather than as separate words ;—*all-swans, some-swans, no-swans*. The fuller explanation of this will appear in the sequel.

The same applies to the little words *an, a, and the* ; and it applies to them even more strongly and decidedly than it did to *all, some, and none* ; inasmuch as they have no separate independent existence at all. We cannot use them by themselves. On the contrary, wherever they appear, they appear as the part of some other term, and that inseparably ;—*a-man, an-egg, the-man, &c.*

EXAMPLES.

A heavy body, or a-heavy-body, is a many-worded term.

So is a court of justice, or a-court-of-justice.

So is John-Nokes-the-mayor-of-the-town. (Examples from Mill.)

So is a-man-in-a-black-coat-riding-along-the-road-on-a-bay-horse.

We "might," writes De Morgan, "coin a single word to express" this.

Let us keep, however, as much as possible to the words which we have chosen as samples of these several classes, viz. : *sun*, *bright*, and *shine*.

1. The-bright-sun is shining—
2. The-sun-of-summer is shining—
3. The-bright-sun-of-summer is shining—
4. The-bright-sun-of-summer is shining-cheerfully—
5. The-sun-of-summer shines-cheerfully—
6. The-sun-of-summer shines-cheerfully-with-its-beams-through-the-air-of-the-morning-in-this-lovely-month-of-June.

All these are instances of many-worded-terms.

They give us two new words—samples of classes, viz.: *a—of—* and *cheerfully*. Let us add these to our previous list, which now runs thus ; *sun—bright—shine—cheerfully—of—a*.

Summer, *beams*, *air*, and *morning*, belong to the same class as *sun*.

With and *through* belong to the same class as *of*.

What is the principle upon which these several words (and the words like them) combine, so as to form many-worded-terms ?

First rule.—This is the rule for words like *bright*. They combine with words like *sun* ; and that without the interposition of any intermediate link ;—*the bright sun*. They can, however, form terms by themselves ; *i. e.* they can form predicates. Hence they suggest no new class, having been already considered. This is not the case with the words that come next. *They* give us new classes of words.

Second rule.—This is for words like *cheerfully*, which can only form *parts of terms*. They combine only with words like *bright*. We cannot say *the cheerfully sun shines*. We can say *the cheerfully bright sun shines*.

We can also say, *the bright sun shines cheerfully*, or *the cheerful sun shines brightly*; for *cheerfully* is in the same class with *brightly*, and *cheerful* is in the same class with *bright*.

But is not this an exception to the rule? Is not *shines* in a different class from *bright*? It is, and it is not. *Shines* = *is shining*, and *shining* and *bright* are in the same class. *Bright* is a word that forms a predicate. So is *shining*. But *shines* is a predicate and copula as well. Hence, when we say *the sun shines brightly*, we attach the word *brightly* to the predicative, and not to the copular part of *shine*.

1. The sun shines = the sun is shining,

2. The sun shines brightly = the sun is shining brightly ;

or,

3. The sun is brightly-shining,

not

4. The sun is-brightly shining.

We cannot say—

The sun is brightly ;

we can say—

The sun is shining.

Third rule.—This applies to words like *of*, *with*, *through*, &c., words which, like the last, can only form *parts of terms*. They combine with words

like *sun*, *summer*, *beam*, and *air*, and with no others. We cannot say—

This is the sun of bright.

We can say—

This is the sun of summer.

More than this; they cannot enter into the structure of a term, unless there be not only *one* word like *sun*, with which alone they can be combined, but *two* such. Strike out from the example last given either of the two words *sun* or *summer*, and you must strike out *of* also.

Now it is clear that, in the different places in the structure of many-worded terms which these several words fill, we have the basis of a division of them into classes.

One of these contains words like *a*, *an*, and *the*, which blend themselves, almost inseparably, with words like *sun*, *summer*, *beam*, &c.

An anatomist may compare these combinations to the bones and ligaments of the human body, with which his professional studies have made him familiar. If so, he sees in such combinations as *a-man*, and *the-sun*, two parts joined, or jointed together—*articulate*, as he calls them in the language of his science; *articulate*, from the Latin word *articulus* = *joint*, *knuckle*. What if we see, in some future page of this work, this word *articulus* again, and that with a meaning very unlike its anatomical one? It will not be the only instance of the kind. *Dactylus* is the Greek for a *finger*. It is also the Greek for a combination of syllables of different quantities or lengths. A

finger has one longer and two shorter joints ; a *dactyle* has one longer and two shorter syllables.

A second of these suggested classes contains *cheerfully*, and a vast number of words like it ; words which may be said to qualify the meaning of terms like *bright* or *shining*. And this is what they do. They do it, however, in various ways.

Sometimes they give us the *manner* in which the predicate applies to the subject.

Now this is only another way of saying that they give us the manner in which a certain thing is done, or a certain state occurs. To say the *sun is shining cheerfully*, is to connect the predicate *shining*, qualified by the word *cheerfully*, with the subject *sun* ; but it is also to make the statement that the object called *sun* does a certain act (*i. e.* the act of *shining*), in a certain manner, *i. e.* *cheerfully*. He might have done it differently, *i. e.* the *sun* might have shone *dully*, or *faintly*. In like manner to say *I am rather tired*, is to say that *I* (the person who speaks) *am* (or *is*) in a certain state, *i. e.* the state expressed by the word *tired*. But *I* might be *very tired* ; in which case the predicate (*tired*) would have been qualified by a different word from *rather*, but still by a word of the same class.

Now the words of this class are numerous, and they fall into divisions and sub-divisions. And this is no more than what we expect from the word *manner*, which is a word of wide signification. There are many *manners* in which a thing may be done. It may be done *slowly*, *quickly*, *well*, *ill*, &c., &c.

Again, in respect to states of being, there are

many *degrees* in which they may occur ; for instance, men may be *just-a-little*, or *slight-ly*, or *rather*, or *very*, or *exceeding-ly* tired.

Then there are the words denoting *time* and *place* ; for it is clear that an action done in one place, or at one time, differs from an action done elsewhere, and at another. We may, perhaps, say that it differs in the *manner* of its doing ; for though the two actions, when taken by themselves, may be alike, the circumstances under which they occur constitute a difference of no small importance. This gives us words like *here* and *there*, and also words like *now* and *then*.

Other examples may be given, but they will probably suggest themselves spontaneously. They are by no means either few or rare. They have what may be called their *function*, which is to qualify or *modify* the meaning of words like *bright*, *tired*, *shining*, &c. And now—

Observe the word *modify*. It is derived from *modus*, a *mode* or *manner*. From *modus* the Latin language derived the word *modal-is*, from which grammarians and logicians get the term *modal* = *in mode or manner* of a thing.

All the words belonging to the present class are more or less *modal* in their function.

1. Words like *of*, *with*, *through*, &c., still stand over for notice. The class that they form, though important, is small. It consists chiefly of the following words—*by*, *from*, *in*, *out*, *near*, *through*, *with*, *up*, *down*, along with a few others.

This is all that will be said about it at present.

28.

Many-worded copulas.—Negative element compound.

§ So much in respect to the complexity of *terms*. We may add that, even the sign of the *negative copula* is rarely, if ever, simple. The word *not* = *n* + *whit*, *n* + *aught*, *n* + *ot*, its sense being *not-a-whit*, *not-a-bit*, *not-at-all*. The French language illustrates this still more clearly—where the second element (*pas* or *point*) is separated from the negative proper by the verb. *Je ne l'ai vu pas* = *I have not him seen at all*, being, as in English, only more evidently, a negative, and something else.

This second element of the negative is *modal*. It gives not only the negative itself but its *manner* or *degree* as well.

29.

Propositions isolate or connected—THEREFORE.

§ In sentences like *bread is dear*, &c., we have the connection between two *terms*.

Can two *propositions* be connected? The proper logicians are those who have most to do with this branch of inquiry; and it is in the language of the proper logicians that the illustration of it may best begin. The proper logicians have so much to do with the connection of propositions that their whole science turns upon it: indeed, if a proposition stand alone, they have nothing to do

with it. One of the most important words in all logic is a word which makes no part of a term, no part of a copula, no part of a proposition at all. It is extra-terminal, so to say—extra-copular—extra-propositional. It comes between two propositions, but belongs to neither. It is part of the masonry of logic, but it is neither brick nor scaffolding. It is the cement or mortar. The word in question is *therefore*. There are other words like it ; but if we understand the import of the word *therefore*, we shall understand the basis and foundation of the science of formal logic.

1. Frame a universal proposition, and let it be affirmative.—*All swans are white.*

2. Fix your attention on its subject—*swans*.

3. Frame a second proposition, which shall also be affirmative, but not universal. Let it be particular.

4. Let the predicate of this second proposition be the same as the subject of the first.—

Some-of-the-birds-in-St.-James's-Park are swans.

5. Out of these two propositions make a third. There is no difficulty in doing it. It will be as follows—

Some-of-the-birds-in-St.-James's-Park are white.

6. Consider the nature of the connection between this third proposition and the two which preceded, and select the proper word for expressing it. This will be *therefore*.

1. All swans are white.

2. Some-of-the-birds-in-St.-James's-Park are swans.

Therefore

4. Some-of-the-birds-in-St.-James's-Park are white.

Instead of the second of the three propositions being universal, let it be particular. The result will be the same. There will be a place for a word between the second and third, and the word that fills that place will be *therefore*.

1. All swans are black.]

2. Some-of-the-birds-in-the-pond-in-St.-James's-Park are swans.

Therefore

3. Some-of-the-birds-in-the-pond-in-St.-James's-Park are black.

We may substitute for *swans*, *birds*, &c., and *white* (or *black*), any words whatever which can take their place as terms of a proposition, and the result will be the same. The statement conveyed in the third proposition will necessarily follow, and be deduced from the statements of the first and second, and this necessary relation will be expressed by the word *therefore*, the first example of a peculiar class of words, viz. words that enter into language without entering into propositions.

They enter into language without entering into propositions. Nevertheless, they are anything but independent of them. On the contrary, they have, in one sense, more to do with them than even words like *man*, *bright*, and *shine*. Words like *man*, *bright*, and *shine*, can exist where there is only a single proposition into which they may enter.

Words like *therefore* enter into no proposition at all ; yet they require *two* before they can exist. This is because they must have something that they can come *between*. The copula is somewhat in the same way. It requires two terms before it can exist ; two terms between which it can find its place. The words, too, like *of* and *with*, originated under like conditions. They come *between* two other words.

30.

Propositions isolate or connected—BECAUSE.

§ Transpose the order of the three propositions last given, beginning with the last and ending with the first ; and instead of writing *therefore* after the second, write *because* after the first.

Some-of-the-birds-in-the-pond-in-St.-James's-
Park are white,

because

Some-of-the-birds-in-the-pond-in-St.-James's-
Park are swans, (and)

All swans are white.

This is a second instance of a word coming between two propositions, but belonging to neither.

31.

Propositions isolate or connected—IF—AND.

§ Instead of stating directly and unconditionally that *all swans are white*, or that certain *birds-in-*

the-pond, &c., are *swans*, qualify one or both of the propositions by the word *if*. Thus—

If

All swans are white, (and)
Some-of-the-birds, &c., are swans,
Some-of-the-birds, &c., are white.

Or,—

All swans are white, (*and*)

if

Some-of-the-birds, &c., are swans,
Some-of-the-birds, &c., are white.

These are additional instances of a word standing between two propositions, but belonging to neither of them.

32.

Propositions isolate or connected—AS (or SINCE),
FOR, THEN.

§ *As* (or *since*), *for*, and *then*, are in the same class with *therefore*, *because*, and *if*. Thus—

Some-of-the-birds, &c., are white,

because,

They are swans ;

for, as (since)

All swans are white,
Some-of-the-birds, &c., must be white.

Or,—

If

All swans are white,

then
 Some-of-the-birds, &c., are white,
for (as or since)
 They are swans.

33.

Propositions isolate or connected—BUT.

§ The word *but* shall supply us with our last illustration, and it shall do so in a sentence arising out of the subject itself, and already made familiar to us—

“ *Therefore, because, if, and, as, since, for, then,*
and but, stand between two propositions,

but
 They belong to neither.”

(34.)

*Sketch of the structure of the ordinary syllogism—
 its mechanism.*

A combination of three propositions, the third of which is connected with the other two by means of the word *therefore*, is called a *syllogism*; and with the structure of the syllogism the province of the logician begins—the province of the logician as distinguished from that of the grammarian. The latter deals with single propositions, and with propositions in pairs; the former with propositions in *threes*, or *triads*, if we may borrow an expression from the Welsh antiquarians.

If he strictly limit himself to his own subject, the grammarian will have nothing to say to syllogisms. However, in the present work we have

said so much about terms that we will utilize our familiarity with them, carry our observations a little further, and (although wide of our mark) direct our attention to a point of proper logic.

Our first analysis of the syllogism will be that of a watchmaker, who, in explaining the mechanism of a watch, is satisfied, in the first instance, at least, with taking one to pieces, numbering the several parts of which it consists, and naming them. The *principles* of his art he reserves for a second division of his subject.

A syllogism, then, consists of three propositions, the third of which is connected with the other two by means of the word *therefore*. And this alone is sufficient to suggest the nature of the proposition thus connected, and, through it, of the syllogism altogether. It suggests that it is a form of *reasoning*. Something has gone before, and *therefore* something else will come after it.

Of the three propositions that constitute a syllogism, the third is called the *conclusion*, the other two the *premises*.

So much for the number and names of the three propositions that constitute a syllogism.

Next follows the question as to the number of its *terms*. How many of these are there? In one sense, there are *six*; in another, only *three*. There are six, because each proposition contains two, a subject and a predicate. There are six, because $3 \times 2 = 6$. There could not be fewer

But it by no means follows that because there are six terms altogether in a proposition there should be six *different* ones. One, or more, of them may be repeated. The subject of one propo-

sition may be the predicate of another, as is the case with the following pair of sentences :—

Man is mortal,
Socrates is a *man* ;

and with innumerable others.

Now the real number of the *different* terms of a proposition is three ; so that our formula is *three and three—three propositions and three terms*, each term appearing twice—three propositions—three pairs of terms.

So now we see why the number of terms in a syllogism is, in one sense, *six*, in another, *three*. There are *six*, if we look to the whole number of predicates and subjects ; *three*, if we look only to the different words that constitute them.

All men are mortal, }
Socrates is a man, } *Premises.*
 therefore
Socrates is a mortal.—*Conclusion.*

In this conclusion, *Socrates* is the subject, *mortal* the predicate.

It is absolutely necessary to the structure of the syllogism that the terms of the conclusion must previously have appeared in the premises. How could it be otherwise, when each term has to be taken twice ?

But this is not all ; the two premises have to be distinguished from one another. If so, they require to be named.

Now the names for the premises are obtained from the names of the terms of the conclusion, the

predicate of the conclusion being called the *major* term, the subject of the conclusion the *minor*.

Each of these not only (as has been already stated) appears in the premises generally, but in different and specific parts of them ; *i.e.* one appears in their first, the other in their second proposition ; and this is only another way of saying that, of the two premises in a syllogism, one must contain the subject, the other the predicate, of the conclusion. Unless this be the case, there is no syllogism at all.

The premiss that contains the predicate of the conclusion, is called the *major* premiss ; the predicate of the conclusion having been called the *major* term.

The premiss that contains the subject of the conclusion is called the *minor* premiss ; the subject of the conclusion having been called the *minor* term. Hence—

A premiss often takes its name from the name of the term it includes ; and *major* terms make *major* premises, and *vice versâ*.

Major.—All men are mortal.

Minor.—John is a man.

Therefore,

Conclusion.—John is mortal.

(*Barbara*.)*

Here *mortal*, the predicate of the conclusion, is the *subject* of the *major* premiss as well.

John, the subject of the conclusion, is also the subject of the *minor*.

* The words in italics appended to the end of each syllogism need not be noticed at present ; they are explained in § 45.

But what is the third term, *man*, which has no place in the conclusion at all?

This will be considered after the *order* of our three propositions has been examined.

In the examples just given, the *major* preceded the *minor*, and the *minor* the *conclusion*. Was this necessary? No. The *minor* might have come first.

John is a man.

All men are mortal.

Therefore,

John is mortal.—(*Barbara.*)

More than this: substitute *because* for *therefore*, and the conclusion might have come first, *i. e.* we might have begun with the end.

John is mortal,

Because

John is a man, (and)

All men are mortal.

or,

John is mortal,

Because

All men are mortal, (and)

John is a man.

It is a matter of custom, however, to use *therefore* instead of *because*, and, in accordance therewith, to write the *major* first, and the *conclusion* last, the *minor* coming between. It is only, however, a matter of custom.

And now we may ask the name of the third term, *man*; the term that has no place in the conclusion at all.

It is called the *middle* term ; and a very important term it is. It is called *middle*, because it is neither the *greater*, like the *major*, nor the *smaller*, like the *minor*. It appears in the minor premiss ; and as the minor premiss is between the major and the conclusion, its place in the syllogism looks like a reason for the name *middle*. It is, however, only an apparent, the other being the true, one. Besides this, the middle term is not limited to the middle proposition ; but occurs in the first as well :—

1. All *men* (*middle term being the subject*) are mortal ;

2. Socrates is a *man* (*middle term being the predicate*) ;

Therefore,

3. Socrates is mortal (*no middle term at all*).

A middle term in the conclusion, either as subject or predicate, is a logical impossibility, as the very terms *major* and *minor* exclude it. A *major* is a *major* because it is one term of the conclusion ; and a *minor* is a *minor* because it is the other. Now there is no third term at all ; and hence a middle term in the conclusion of a proposition is a contradiction in terms.

A *middle* term, then, takes its name from the fact of its being intermediate to its *greater* and *lesser* fellows, or *co-terms* ; its *major* on one side, and its *minor* on the other. But what sort of an explanation is this ? Is it not an instance of the *obscurum per obscurius* ? What are *majors* that they should be made much of, and called *great* ? What are *minors* that they should be made little of, and called *small* ? Whence the idea of size,

magnitude, or quantity; these notions of littleness, of much-ness, and of mean-ness? By *mean* I mean *middle*, as is meant in the expression *golden mean = aurea mediocritas*.

Any affirmative proposition whatever answers this question; *e. g.* *All swans are birds*. What is *swan*? The name of a class consisting of an indefinite number of objects, to all of which the characteristics of the bird called *swan* apply. *Swan*, then, is the name of a class. And what is *bird*? The name of a class also; the name of a class which contains all the *swans* in the universe, and in addition to these, all the *geese, eagles, pigeons, sparrows, &c.*, besides. Which of these two classes is the larger? The class of birds. Why? Because, though all swans are birds, all birds are not swans. Hence, the term *bird* is the term by which the greater class is denoted. The same applies to *All men are mortal*, though not quite so evidently, inasmuch as *mortal* is not so evidently the name of a class as *bird*. Yet what does it mean? All beings endowed with the attribute of *mortality*. Call them *mortals*, and you have a class of them. Now as this class comprises not only *man*, but all other living beings, it is the name of the greater class, *i. e.* it is a greater, or *major*, term.

For negative propositions, this explanation of the words *major* and *minor* is wanting.

No bird is a quadruped,
All swans are birds,
No swan is a quadruped;

(*Celarent.*)

Or,

No animal is immortal,
All men are animals,
No man is immortal.

It is probable, however, that the phraseology of the affirmatives has been extended to them.

Premiss is derived from the Latin word *præmissus* = *sent before*, wherein *præ* = *before*, and *missus* = *sent*. Its application to the *major* and *minor* premises of a syllogism is clear and appropriate. These are the fore-runners, heralds, or vaunt-couriers of the conclusion. But what are we to say to some of its secondary applications, as they appear in the language of common life, amongst surveyors, beershop-keepers, and legislators, who talk of the *premises of a house*, and of *beer* that may or may not be *drunk* upon such *premises*. Strange divergence of a meaning! A word that originally meant *sent before* now means something upon which a man either consumes malt liquor or founds the conclusion of a syllogism. Strange, but not stranger than many hundred others.

More important than such a question as this is the fact that the words conclusion and premiss are essentially relational terms, as much so as *husband* and *wife*, *parent* and *child*, *sovereign* and *subject*, &c. Where there is no conclusion, there is no premiss; and there is no premiss where a conclusion is wanting. The one leads to, the other follows from, the other. A premiss without a conclusion is a *road* leading to *nowhere*; and that is no road at all. A conclusion without a premiss is an effect without a cause, *i. e.* no effect whatever.

Such is the fact, though common language disguises it. Common language often leads us to say

that such and such conclusions are *false*. So they may be as matters of fact, or as propositions ; but not as matters of logic, or as conclusions. They may be false as matters of fact, because the premises from which they are deduced are false ; and this is the case with such a statement as, *No swan is black*, supposing it to be deduced from—

No bird with web-feet is black,
Swans have web-feet,
Swans are not black.

(*Celarent.*)

It is false because the premises are false. As a deduction from the premises, it is true ; and would have been true as a matter of zoology if they had been so. But they were not. On the other hand—

Some web-footed birds are black,
Swans are web-footed,
Some swans are black,

gives us a true piece of ornithology, but a bad piece of logic. In other words, the proposition, *as a proposition*, is true, as a conclusion false.

A conclusion is a conclusion because it follows from its premises ; and premises are premises because they lead to their conclusion : the terms being relative. A false conclusion is, in reality, a loose and inaccurate name for no-conclusion. Premises, on the other hand, may be false as single propositions, though true as parts of a syllogism ; false as matters of fact, but true as leading to the inference which follows them.

(35.)

Structure of the Ordinary Syllogism.—Combination of Propositions.—Mood.

§ We shall now find it convenient to depart pretty widely from the language of the first sections of this treatise, and to adapt our phraseology to our new department, which has ceased for a while to be that of the grammarian rather than the logician, and begins to be that of the logician rather than the grammarian. We shall find it, I say, convenient to change our phraseology. But, nevertheless, the *things* we talk about will be the same as before. We have, still, under notice, subjects and predicates, terms, copulas which connect them, and statements, assertions, declarations or propositions. Terms and propositions—propositions and terms—it is still the old song; though to a somewhat altered tune. It is still the same series of pictures; though we examine them from another point of view.

It is now convenient to talk less of propositions *simply as such* than of propositions in their character of premiss or conclusion. It is convenient, in short, to talk of conclusions and premises, the premises being either majors or minors.

In like manner, it is also convenient to talk less of terms *simply as such* than of terms in their characters of major, minor, and middle. At any rate, we must fix our attention steadily on these five words—conclusion, premiss, middle term, major, and minor. We must remember, too, that major and minor are the names of certain propositions as well as the names of certain terms.

The first analysis of the syllogism is into its conclusion and premises, the premises being either major or minor; each of the three being a proposition of some kind or other, the conclusion being a proposition, the major premiss being a proposition, the minor premiss being a proposition—three propositions in all. But propositions are of four kinds:—

1. Universal Affirmative.
2. Universal Negative.
3. Particular Affirmative.
4. Particular Negative;

as has been shown in § 26; and any one of these four kinds may constitute any one of the parts of a syllogism. Thus—

a. The major premiss may be one of four things; viz. universal affirmative, universal negative, particular affirmative, or particular negative. It may be any one of these; and cannot be anything else.

b. The minor premiss may be one of four things; viz. universal affirmative, &c.

c. The conclusion may be one of four things, &c.

To proceed—the conclusion may be the same as one of the premises, *e.g.* Say that it is the same as the minor, and that they are both universal affirmatives. We, then, have one universal affirmative followed by another

Again—the minor may be the same as the major. Say, that both are universal affirmatives, and (the conclusion being the same as the minor), we have, then, three universal affirmatives running. This is neither more or less than saying that all the three propositions of a syllogism are of the same sort, *i.e.* universal and affirmative, affirmative and uni-

versal. In such a case, the order of the proposition would be :—

Major—Universal Affirmative,
Minor—Universal Affirmative,
Conclusion—Universal Affirmative.

There are plenty of syllogisms of this kind,
e. g. :—

All men are mortal ;
 All heroes are men ;
 Therefore,
 All heroes are mortal.—(*Barbara.*)

Contrast with this—

No men are immortal ;
 All heroes are men ;
 Therefore,
 No heroes are immortal.—(*Celarent.*)

What is the order here ? The following :—

Major—Universal Negative,
Minor—Universal Affirmative,
Conclusion—Universal Negative.

Again, as a third combination, consisting of a Universal Affirmative, followed by two Particular ones, take—

All men are mortal ;
 Some heroes are men ;
 Therefore,
 Some heroes are mortal.—(*Darii.*)

Here the order (which we may as well express somewhat more compendiously than has hitherto been done) is U. A.—P. A.—P. A.; the words

E

major, minor, and conclusion being omitted, and the initials standing for the whole word, viz. :—

U. A. for Universal Affirmative,
P. A. for Particular Affirmative.

To these add—

U. N. for Universal Negative,
P. N. for Particular Negative.

Hence, a fourth combination,—

No bad-man is happy ;
Some heroes are bad-men ;
Therefore,
Some heroes are not happy,

(*Ferio.*)

may be read off thus—U. N.—P. A.—P. N. ;
or—

Major—U. N. (or) Un. Ng.

Minor—P. A. (or) Pa. Aff.

Conclusion—P. N. (or) Pa. Ng.

There is some advantage, as will appear in the sequel, in writing the order in which the propositions of a syllogism follow each other vertically, or from top to bottom, rather than horizontally, or from side to side.

The order in which the propositions of a syllogism follow each other is called the *mood* of the syllogism.

Enough has now been said respecting the different combinations of the different sorts of propositions that constitute the conclusions and premises of syllogisms. The subject is, by no means, exhausted ; indeed it is only touched. All that is suggested by the present section is, that the

sequence, order, or combination of the constituent propositions of a syllogism is a matter upon which we must steadily fix our attention.

(36.)

Structure of the Ordinary Syllogism.—Combinations of Terms.—Figure.

The combinations effected through the difference between Affirmatives and Negatives, Universals and Particulars, as *propositions in the structure of premises and conclusions*, is one thing; and this we have just noticed.

The combinations effected through the difference between Majors, Minors, and Middles, as *terms in the structure of propositions*, is another; and this we are now about to notice.

They are both questions of order or sequence.

The following syllogisms are the syllogisms of the previous section. Over each of their subjects and predicates the word *major*, *minor*, or *middle*, according to the nature of the term to which it applies, is written:—

1.

| | | |
|----------------|-----|----------------|
| <i>Middle.</i> | | <i>Major.</i> |
| All men | are | mortal. |
| <i>Minor.</i> | | <i>Middle.</i> |
| All heroes | are | men. |
| <i>Minor.</i> | | <i>Major.</i> |
| All heroes | are | mortal. |

(Barbara.)

2.

| | | |
|----------------|-----|---------------|
| <i>Middle.</i> | | <i>Major.</i> |
| No men | are | immortal. |

E 2

| | | |
|---------------|-----|----------------------|
| <i>Minor.</i> | | <i>Middle.</i> |
| All heroes | are | men. |
| <i>Minor.</i> | | <i>Major.</i> |
| No heroes | are | immortal. |
| | | (<i>Celarent.</i>) |

3.

| | | |
|----------------|-----|-------------------|
| <i>Middle.</i> | | <i>Major.</i> |
| All men | are | mortal. |
| <i>Minor.</i> | | <i>Middle.</i> |
| Some heroes | are | men. |
| <i>Minor.</i> | | <i>Major.</i> |
| Some heroes | are | mortal. |
| | | (<i>Darii.</i>) |

4.

| | | |
|----------------|-----|-------------------|
| <i>Middle.</i> | | <i>Major.</i> |
| No bad-man | is | happy. |
| <i>Minor.</i> | | <i>Middle.</i> |
| Some heroes | are | bad-men. |
| <i>Minor.</i> | | <i>Major.</i> |
| Some heroes | are | not happy. |
| | | (<i>Ferio.</i>) |

Here the sequence, or order, is—*middle, major ; minor, middle ; minor, major.* Or,—

1. *Middle, major.*
2. *Minor, middle.*
3. *Minor, major.*

And it is the same throughout—the same throughout, notwithstanding the difference of order, sequence, or combination in the propositions.

What do we infer from this? Do we infer that the order of the *terms* of a syllogism is constant and invariable, whilst the order of the *propositions* is variable and inconstant? That the affirmatives and

negatives, the particulars and universals, may be chopped and changed, whilst the majors, minors, and middles, have fixed positions? No such thing. So, at least, says the following example, the form of which is—

Major, middle,
Minor, middle,
Minor, major,

or—

| | | |
|---------------|----|--|
| <i>Major.</i> | | <i>Middle.</i> |
| No bird | is | an-animal-that-brings-forth- its-young-alive. |

| | | |
|---------------|----|--|
| <i>Minor.</i> | | <i>Middle.</i> |
| Every bat | is | an-animal-that-brings-forth- its-young-alive. |

Therefore,

| | | |
|---------------|----|----------------------------|
| <i>Minor.</i> | | <i>Major.</i> |
| No bat | is | a bird.—(<i>Cesare.</i>) |

There are more ways than one, then, in which the majors, minors, and middles of the terms of the premises and conclusions of syllogisms may be arranged, ordered, or combined; and as the object of the present notice is to indicate, rather than exhaust, this difference, this is as much as need be said at present, except that the order in which the terms of a syllogism follow each other is called the syllogism's *figure*.

(37.)

Structure of the Ordinary Syllogism.—Combinations of Propositions and of Terms considered together.—Mood and Figure.

§ The combinations effected through the difference between affirmatives and negatives, universals and

particulars, are one thing (*i. e.* matters of *mood*). The combinations effected through the difference between majors, minors, and middles, are another (*i. e.* matters of *figure*).

We have hitherto kept them separate.

Let us now treat the two together ; briefly, and as an illustration rather than a full exposition of the subject.

In doing this, it will suffice to select two pairs out of the foregoing syllogism, and to contrast them with one another.

FIRST PAIR.

1.

- A. All men are mortal,
- A. All heroes are men,
- A. All heroes are mortal.—(*Barbara.*)

2.

- E. No man is immortal,
- A. All heroes are men,
- E. No hero is immortal.—(*Celarent.*)

These, considered as combinations of propositions and terms, run thus :—

1.

AS PROPOSITIONS.

- A, *or*, Universal affirmative.
- A, *or*, Universal affirmative.
- A, *or*, Universal affirmative.

AS TERMS.

- Middle, major.
- Minor, middle.
- Minor, major.

2.

AS PROPOSITIONS.

- E, *or*, Universal negative.
- A, *or*, Universal affirmative.
- E, *or*, Universal negative.

AS TERMS.

- Middle, major.
- Minor, middle.
- Minor, major.

Here the order of the terms is the same, the order of the propositions being different; a fact which the next pair of examples will reverse.

SECOND PAIR.

1.

E. No man is immortal,

A. All heroes are men,

E. No hero is immortal. —(*Celarent.*)

2.

E. No bird is an-animal-that-brings-forth-its-young-alive,

A. Every bat is an-animal-that-brings-forth-its-young-alive,

E. No bat is a bird. (*Cesare.*)

Or,—

1.

AS TERMS.

AS PROPOSITIONS.

Middle, major.

E, *or*, Universal negative.

Minor, middle.

A, *or*, Universal affirmative.

Minor, Major.

E, *or*, Universal negative.

2.

AS TERMS.

AS PROPOSITIONS.

Major, middle.

E, *or*, Universal negative.

Minor, middle.

A, *or*, Universal affirmative.

Minor, major.

E, *or*, Universal negative.

Here, the combination of the terms differs, the combination of the propositions being the same. Syllogisms, then, may be of the same *mood*, but of different *figures*, and of the same *figure*, but of different *moods*.

(38.)

Structure of the Ordinary Syllogism.—White.—Socrates.—Some.

This is a convenient place for noticing three points of logical language, which, if neglected, may strike the reader at some future time as having been insufficiently explained.

I. *WHITE, and words like WHITE.*—These are the words that can, by themselves, constitute predicates, but which cannot, by themselves, constitute subjects, as—

All swans are white.

The grammarian has good reasons for denying that words of this kind are *names*. He allows *whiteness* to be a name. *White-thing*, also, he allows to be a name; but not the simple word *white*. He allows, however, that it is a word which suggests and implies a name, and that by adding to it the word *thing, object, entity, being*, or some equivalent word capable of forming a subject, it may be converted into a name. Finally, he admits that this conversion is easy, and, in logic, always legitimate.

Now, this reduction of words capable of forming predicates only into words capable of forming predicates and subjects as well, which the grammarian allows to the logician, the logician finds absolutely necessary.

All swans are white,

But,

All white—are not swans.

We must fill up the blank here, by *bird, animal, thing, object, entity, &c.*, as the case may be. Hence,—

1. *White-thing* is an actual name, a name *in esse*; whilst—

2. *White*, a word implying a name, is a name *in posse*.

Between these two, the grammarian draws a difference. The logician treats them both alike; both as actual names. *White*, in logic, is a name; and, in logic, a term must be a *name*.

In grammar, a term must be either a *name* or a *word that implies a name*.

This will be noticed more fully in the sequel.

II. SOCRATES, and words like SOCRATES.—These (John, Peter, Julius Cæsar, &c.) are names for single individuals. As such they wear the appearance of being particular rather than universal terms.

If, for instance,

Some men are mortal,

be a particular proposition, surely—

Socrates is mortal,

is particular as well; inasmuch as Socrates is only *one* man. He is only *one* out of *some*; a part of a part; a fraction of a fraction; an individual out of a collection; the collection itself being but part of another, and a larger, one.

Nevertheless, *Socrates*, and terms like *Socrates*, are not particular, but universal; the fact being that when we say that *Socrates* (*John, Peter, Julius Cæsar, &c.*) is mortal (*man, philosopher, &c.*), we mean not so much the particular individual as a class of individuals whom *Socrates* (*John, &c.*) re-

presents. But classes may be either great or small. They may consist of a million million million of individuals or of only one.

Now the class that is represented by names like *Socrates, John, &c.*, is a class consisting of a single member. As a *class*, however, it is unbroken in such propositions as

Socrates is mortal,

which give it in full, and not in parts.

III. SOME.—In common conversation, the speaker who says that *some swans are white*, implies that there are *others* which are *not white*. And, in like manner, the statement that *some swans are not white*, implies that *some are*. In other words, the affirmation of a part implies the denial of the remainder, and, *vice versâ*, the denial of part implies the affirmation of the remainder. But in logic, this is not the case. In logic, every proposition means exactly what it states, and implies nothing beyond it. In logic, a man may say that *some swans are white*, and, by no means, suggest the notion that they are not *all* so. This may, or may not be the case. If *all swans are white*, it is self-evident that *some* of them are. If *some swans are white*, *all swans may* be so.

Some, then, in logic, may mean the same as *all* or *every*; a meaning which, in common speech, it has not.

Some, in logic, means *more than none*—*i. e.* *more than none, and possibly all*.

(39.)

Structure of the Ordinary Syllogism.—Quantity or Extent of the Predicate.

The care that is taken by the logicians, that the word *some* should not, by implying (as it does in common conversation) something more than it actually expresses, mean too much, has just been noticed. Through it, we attain (no doubt) a certain amount of caution and accuracy of thought. To say neither more nor less than we mean, and to mean neither less nor more than we say, is only what is right and proper. Be it so. The accuracy, however, in question is limited to one of the members of the proposition. It is only in the Subject that it shows itself; the Predicate being, by no means, well furnished with signs of its quantity or extent.

Mark the blank in the following syllogism :—

All men will die,
 All men are rational beings,
 Therefore,
 ——— rational beings will die.

Mark the blank; and ask what is required to fill it up. It must be one of three words—*no*, *all*, or *some*. That it cannot be *no* is evident. On the contrary, it must be either *all* or *some*. Which of these two words is the right one remains to be investigated, and this investigation must be limited to the syllogism itself. We are not allowed to argue, from the rationality of immortal spirits, that only *some* of the beings endowed with reason will

die, and as little are we free to limit the domain of rational beings to the earth upon which we dwell, and, on the strength of all the rational beings of the world of man being liable to death, to assume that *all* will die. We are precluded from all reasoning of this kind; precluded from it because our field of inquiry is limited to the syllogism itself.

In examining this, the first step is to remark that the term *rational beings* in the subject of the conclusion is neither more nor less than the *rational beings* which stood as predicate in the minor premiss. What is it then? Universal or particular? Is it *all men are* (ALL) *rational beings*, or *all men are* (SOME) *rational beings*; by which is meant, Do men constitute the *whole* of the class of rational beings, or do they constitute only a part of it? The answer to this must be got at as we best can. It is transparently evident that it is not given, in the wording of the proposition. The subject (*men*) was preceded by *all*; but what precedes the predicate (*rational being*)? Nothing. As far as words go, the whole of the class may as easily be meant as a part of it, and *vice versâ*. Now—

A subject that has previously been a predicate retains its predicative *quantity*.

But this, as long as it was the quantity of a predicate, was a matter of inference only. No sign expressed it. Hence—

Wherever there is a subject in a later, which has stood as the predicate in a former, proposition, the *sign of its quantity* has to be *inferred*.

The rules for doing this are simple; and we arrive at them from the *quality* of the proposition

in which the terms occur—from its *quality*, not its *quantity*, from its character as affirmative or negative, rather than from its character as universal or particular.

The *quantity* helps us but little—

All swans are white.

Admit this to be true, and it will by no means follow that—

All white-things are swans,

however much *some* white-things may be so.

This gives us the rule, that—

1. Universal affirmatives have particular predicates. On the other hand—

2. With universal negatives, the predicates are universal. To say that—

No horse is a bird,

is to say that—

No bird is a horse.

3. The predicates of particulars are of the same extent as their subjects. Hence, as the general rule,—

4. Affirmative propositions have particular, negative, either universal or particular, predicates.

(40.)

Operations on the Ordinary Syllogism—Strengthening and Weakening.

§ *Strengthen* and *weaken* are words of a definite and technical meaning in Logic.

If *ALL men are mortal*, it stands to reason that *SOME men MUST BE so*. The two propositions, however, differ. *SOME* men may be mortal without *all* being so.

The two propositions differ, the one being *particular*, the other *universal*.

To change a proposition from universal to particular is to *weaken*, to change one from particular to universal is to *strengthen*, it.

Now, a universal conclusion from particular propositions is a conclusion too strong for its premises ; or rather, it is a conclusion for which the premises are too weak ; or rather, it is no conclusion at all.

(41.)

Operations on the Ordinary Syllogism—Conversion and Reduction.

§ To change the order of the terms of a proposition is to change the predicate into the subject, and *vice versâ*. This is called *conversion*.

Simple conversion occurs where we transpose both the term itself and the sign of its quantity, *i. e.* we change their places without making any further alteration ; or, as the sign of its quantity is a part and parcel of the term itself, we have an instance of simple conversion where we transpose the terms altogether. This we do with such propositions as—

No horse is a bird,
which is the same as

No bird is a horse ;

and with

Some quadrupeds are horses,
which is the same as

Some horses are quadrupeds.

With

All horses are quadrupeds,
the case is different. Here the conversion into
All quadrupeds are horses,
is incorrect.

Change, however, *all* into *some*, and the conversion is legitimate. For—

All horses are quadrupeds,

and

Some quadrupeds are horses.

This, however, is something more than simple conversion. It is conversion accompanied with weakening.

It is obvious that by conversion we may change the mood and *figure* of the proposition converted. This is called *reduction*.

(42.)

Structure of the Syllogism illustrated by treating its Terms as the Names of Classes.—Is (or =) equivalent to INCLUDED IN.

§ The notion that the terms of propositions partake of the nature of the names of classes has already been suggested. It may now be added that, upon this view, certain aids to the understanding have been framed; aids to the understanding, because they address themselves to the

senses. Form a small triangle, a larger circle, and a square larger still; a square large enough to contain the circle, a circle large enough to contain the triangle, and a triangle small enough to go into the square.

Δ \bigcirc \square

It is clear that

If

All the Δ be included in \bigcirc

and

All the \bigcirc be included in \square

therefore

All the Δ must be included in \square

And this may be stated more compendiously by writing $=$, or $>$ for *included in*, and \therefore for *therefore*. Thus—

| | | | | | | |
|---------------------|-----|------------|-----------|---------------------|-----|------------|
| Δ | $=$ | \bigcirc | | Δ | $>$ | \bigcirc |
| \bigcirc | $=$ | \square | <i>or</i> | \bigcirc | $>$ | \square |
| $\therefore \Delta$ | $=$ | \square | | $\therefore \Delta$ | $>$ | \square |

Again: instead of *all* Δ being included in \bigcirc , and all \bigcirc in \square , parts only of the classes thus symbolised may be included—facts for which it is by no means difficult to find material or diagrammatic illustrations. Thus—

| | | | | |
|----------------------|----------------|------------|----------------|------------|
| \triangle | means all | Δ | is included in | \bigcirc |
| $\Delta \bigcirc$ | „ no part of | Δ | „ | \bigcirc |
| $\triangle \bigcirc$ | „ some part of | Δ | „ | \bigcirc |
| \square | „ all | \bigcirc | „ | \square |
| $\bigcirc \square$ | „ no part of | \bigcirc | „ | \square |

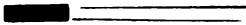


&c., &c.

EXTRACT.

“Let us take the simple assertion, ‘Every living man respire,’ or ‘every living man is one of the things (however varied they may be) which respire.’ If we were to enclose all living men in a large triangle, and all respiring objects in a large circle, the preceding assertion, if true, would require that the whole of the triangle should be contained in the circle. And in the same way we may reduce any assertion to the expression of a coincidence, total or partial, between two figures. Thus, a point in a circle may represent an individual of one species, and a point in a triangle an individual of another species; and we express the whole of one species as asserted to be contained or not contained in the other, by such forms as, ‘All the Δ is in the \odot ; none of the Δ is in the \odot .’”—
DE MORGAN, *Formal Logic*, pp. 8, 9.

Other illustrations are given by means of black and white lines superimposed over each other.

Thus, if all the black portion of A be contained within the black of B, the black of B being similarly contained within the black of C, the black of A must also be contained within that of C.

A, 
 B, 
 C, 

Other illustrations of the same kind might be added. These, however, are sufficient for the present.

(43.)

Structure of the Syllogism.—Symbolic Representation of Terms by means of Letters.

§ The extent to which the syllogism is independent of the truth of the facts, or opinions,

exhibited in its propositions has already been stated; nor have the repetitions and expansions of the statements to this effect been made without an object. They have served to illustrate what may be called the *formal* character of the syllogism, by which is meant, the fact of the conclusion being deduced from its relation to its premises, rather than the accuracy as matters of fact of the premises themselves.

Such being the case, we are prepared to find in Logic what we find in Algebra, viz. the symbolic representation of the parts of propositions by means of letters—a representation that the generality of the processes of syllogistic reasoning favours and suggests.

EXTRACT.

“When we say that all men will die, and that all men are rational beings, and thence infer that some rational beings will die, the *logical* truth of this sentence is the same, whether it be true or false that men are mortal and rational. This logical truth depends upon the *structure of the sentence*, and not upon the particular matters spoken of. Thus,

| <i>Instead of,</i> | <i>Write,</i> |
|---|---------------------------|
| All men will die. | Every Y is X. |
| All men are rational beings. | Every Y is Z. |
| Therefore some rational beings will die. | Therefore some Zs are Xs. |

The second of these is the same proposition, logically considered, and rightly inferred from, the premises. Whether the premises be true or false, is not a question of logic, but of morals, philosophy, history, or any other sort of knowledge to which their subject-matter belongs; the question

of logic is, does the conclusion certainly follow if the premises be true?"—DE MORGAN, *Formal Logic*, pp. 1, 2.

Should this leap from a particular instance to a general formula be too sudden, we may take, instead of it, the same amount of change by instalments. Thus, for *men* write *Y*; which will give—

Every *Y* is mortal,
Every *Y* is a rational being,
Therefore,
Some rational beings are mortal.

Then for *mortal* write *X* :—

Every *Y* is *X*,
Every *Y* is rational,
Therefore,
Some rational beings are *X*.

Lastly, for *rational* write *Z*, which will give us the formula with which we began.

EXTRACT.

Let us examine and analyse such an example as :—

“ ‘Every animal that has horns on the head is ruminant; the elk has horns on the head; therefore the elk is ruminant.’ It will easily be seen that the validity (or ‘conclusiveness,’ or ‘soundness’) of the argument does not at all depend on our conviction of the truth of either of the premises; or even on our understanding the meaning of them. For if we substitute for one of the things we are speaking about, some unmeaning symbol (such as a letter of the alphabet), which may stand for anything that may be agreed on, the reasoning remains the same. For instance, suppose we say (instead of ‘animal that has horns on the head’), ‘Every *X* is ruminant; the elk is *X*; therefore the elk is ruminant;’ the argument is equally valid.

"And again, instead of the word 'ruminant,' let us put the letter 'Y:' then the argument, 'Every X is Y; the elk is X; therefore, the elk is Y;' would be a valid argument as before.

"And the same would be the case if you were to put 'Z' for 'the elk;' for the syllogism 'Every X is Y; Z is X; therefore Z is Y,' is completely valid, whatever you suppose the symbols X, Y, and Z to stand for.

"Any one may try the experiment by substituting for X, Y, and Z, respectively, any words he pleases, and he will find that, if he does but preserve the same *form* of expression, it will be impossible to admit the truth of the premises, without admitting also the truth of the conclusion."—WHATELY, *Logic*, i. § 4.

Observe how decidedly both authors insist on the unimportance of the accuracy or inaccuracy of the propositions as taken by themselves, and how thoroughly they admit nothing as essential to the conclusion but its *relation* to the premises, and their *relation* to each other. Observe, how thoroughly they make the *form*, rather than the substance, of the proposition, the all-important and fundamental element of the syllogism. Yet it is not because they, or any other writers, are indifferent to the actual truth of either the propositions of a syllogism or any other series of sentences. It is only because logic is essentially a science of relations, and (as such) a *formal* science.

Formal Logic is the title of Professor De Morgan's work. Open any treatise on logic, and you soon find the statement that "Logic has no province of its own." What, then, has it? It has the handling and testing of all the facts, opinions, and postulates of all departments of inquiry. It

has no field of its own. It measures the growths of all fields. That—

1. Some men are mortal,
2. Socrates is a man,
3. Socrates is a mortal,

is a triad, or leash, of propositions, all of which are true in respect to the facts they declare or affirm. But are they true as premises and conclusion? Are they premises and conclusions at all? No. It is only *some* men whom the first (we cannot call it the *major*) proposition affirms to be mortal. What if there be *some* who are not? What if Socrates be among them? There may be only one in that predicament. But what if Socrates were he? We *know* that he was *not* this. We know, too, that there are no exceptions to the first statement. We know that we might safely have said *all* instead of *some*. Nevertheless, because we failed to do so, we missed a syllogism, though we stated truths enough to form one from.

On the other hand, that—

1. All horses are six-legged,
2. Socrates is a horse,
3. Socrates is six-legged,

is true as a syllogism, though false as a series of propositions, and that in respect to each and all of the three. However—

To save our sense of propositional or substantial truth from being shocked by this indifference on the part of the syllogism, let us insert—

Before the major proposition—*if*,
 Before the minor proposition—*and*,
 Before the conclusion—*then*,
 In the conclusion—*must be*.

In which case our former series of false assertions runs—

if,
All horses are six-legged,
and
Socrates be a horse,
then,
Socrates *must be* six-legged.

The fact is, that this indifference to truth on the part of the syllogism is, practically, in many cases, an instrument in the investigation of truth. There is many a premiss, the accuracy or inaccuracy of which is doubtful, as long as it is looked at alone. See, however, what it leads to, and you see its truth or falsehood.

Finally, it is this indifference to the matter of propositions that makes the symbolical expression of them possible.

The symbols themselves, as we have seen, are certain letters of the alphabet, and, until some reason is given for preferring one to another, they are all equally convenient. In the previous example we wrote $Y \text{ is } X = \text{MAN is MORTAL}$. But we might have written $H \text{ is } Y$, or $A \text{ is } B$, or $B \text{ is } A$, &c.

There are reasons, however, in favour of a certain selection. In X, Y, Z , the order of the alphabet coincides with the order of the terms *major* (X), *middle* (Y), and *minor* (Z), which is an advantage.

They are better than A, B, C , for another reason. A is already used for another purpose. A is one of four letters which are used to denote *whole propositions*, rather than the *terms* that constitute

them; the other three being E, I, O, three out of the four remaining vowels.

How are they used? We are prepared to answer this by our knowledge of the division of propositions into universal or particular, and affirmative or negative.

1. The two universals come first, A stands for the universal affirmative, and E for the universal negative—

Every man is mortal = Every $Y = X$ or A,
No man is mortal = No $Y = X$ or E.


2. The two particulars follow:—

Some men are mortal = Some $Y = X$ or I,
Some men are not mortal = Some $Y \neq X$ or O.

We, doubtless, felt the want of a notation of this kind in § 35, when we wrote such formulæ as *universal affirmative*, *universal negative*, &c., in full—*totidem verbis et totidem literis*. Indeed, it forced us upon the abbreviations, U. A., U. N., P. A., or P. N., &c. Had we, however, used them to any great extent, they would have failed both in compendiousness and generality. Neither would they have had any value in any language where the equivalents to *universal*, *particular*, *negative*, and *affirmative* began with letters other than A., N., P., or U.; as they do (for German) where *Bejahende* = *affirmative*.

With X, Y, Z, as symbols of *terms*, the use is by no means constant. Several logicians use any letter that strikes them instead.

With A, E, I, O, however, the writer has no discretion. He must apply as they have been applied, *semper*, *ubique*, *ab omnibus*.

And now we may state that the same sort of illustration which was supplied by means of our Δ s, \odot s, \square s,  s, &c., may be supplied by the letters of the alphabet.

Let the largest of the three classes, or the longest of the three black lines, be represented by a long line of Zs; each letter denoting the individual objects by the aggregation of which the class is constituted.

Under each Z write Y, for every object that is, at once and the same time, a member of both classes.

Repeat this with X and Y. The result will be lines like—

Z Z Z Z Z Z Z Z Z Z.

Y Y Y Y Y Y Y y y y.

X X X X X x x x x x.

Every X that comes under Y, comes under Z also.

The meaning of the smaller letters is clear. They denote the contraries to X and Y, *i. e.* the objects which are *not-X*, and *not-Y*. The study of these relations, though important, is only suggested in the present section.

(44.)

Propositions Categorical or Hypothetic.

The last example of the previous section suggests a third division of propositions.

That they are either *universal* or *particular* has been seen.

It has also been seen that they are either *affirmative* or *negative*.

We now see that they are either conditional

or unconditional, or, as the logicians say, *hypothetical* (conditional) or *categorical* (unconditional).

In the example just given, the truth of the conclusion as a proposition depended on the truth of the major; this dependence being expressed by *if*.

To speak of propositions as universal and particular is to speak of them in respect to their *quantity*.

To speak of propositions as negative or affirmative, is to speak of them in respect to their *quality*.

To speak of propositions as categorical or hypothetical, is to speak of them in respect to their *substance*.

(45.)

Mnemonics.

§ Symbols and diagrams, abstractions and sensible representations, letters and circles, letters and squares, letters and triangles, black lines and letters, squares and white lines,—all these are matters that we have to take cognisance of in logic. Their relation to the syllogism itself is that of a picture to the object it represents.

They are matters connected with the illustration of its structure. But they are not points in the structure itself.

Is there anything more in this way? We ask this, because, as yet, we have had nothing but detail, nothing but the dead members of the syllogism, taken separately, and destitute of the principle that holds them together as the constituent parts of an organic whole.

We have nearly done with these—nearly, but

F

not quite. There are certain mnemonic words that still stand over for notice.

Suppose that I wish to remember the order of the propositions of any particular syllogism in respect to their *quantity* and *quality*, *e. g.*,

A. All men are mortal,

A. All heroes are men,

A. All heroes are mortal,

I fix in my mind the sequence A A A.

I proceed, and, as I proceed, find it necessary to remember another series.

E. No man is immortal,

A. All heroes are men,

E. No hero is immortal.

This is E A E; and it is clear that my memory is beginning to be taxed. I must first carry A A A in my head, and then E A E; and then (perhaps) a dozen more such formulas.

Now A A A are three separate words, for they are three separate instances of the name of a letter.

And E A E are the same; except that E and A are the names of different letters, a fact which encumbers the memory more than it helps it. So that, for two syllogisms, I have six words to remember.

Now, by certain additions, I can reduce these six words to two; but then, in order to do so, I must manipulate and manœuvre a little.

Suppose that, between each of the A's in A A A, I write one or more letters.

Let these letters be consonants. Let them be *b*, *rb*, and *r*. The result is the word *barbara*.

This is the neuter plural of the Latin adjective *barbarus*; but it is not on this account that the

word is useful. *Rarbaba*, or any other combination of three A's, with a sufficient number of consonants to reduce them to a single word, would have done as well. The identity of the word under notice with another word goes for nothing. It is a mere accident. *Barbara* is, as far as its sense goes (or rather its want of sense) unmeaning. Yet it has a function.

Now treat E A E as we treated A A A, varying in some degree the consonants. In short, write *celarent*. This happens to be a Latin word also, but, *mutatis mutandis*, all that has been said about *barbara* applies to *celarent* also.

Celarent like *barbara* has its function ; and the function of the two words is the same. The consonants merely serve as framework ; the vowels alone must be attended to. Read off these, and you have six words in two, or three in one. *Barbara* gives the sequence A A A, and *celarent* the sequence E A E. It is obvious that every possible combination of A E I O, *i.e.* every *mood*, can be thus treated, and it is a fact, that they *have* been thus treated. Hence, we have a certain number of mnemonic words ready made. Do I want to remember the sequence—

- A. All tyrants are blameworthy,
- I. Some heroes are tyrants,
- I. Some heroes are blameworthy—

I fix in my mind the word *darii*. For

- E. No tyrant is praiseworthy,
- I. Some heroes are tyrants,
- O. Some heroes are not praiseworthy,

Ferio is my mnemonic word.

No one need forget the *mood* of a syllogism for want of a mnemonic. There are plenty of them, as will be seen in the sequel.

But what if we want the figure as well? This will be answered in the sequel also. The object of the present section is to state the fact, that some of the difficulties in the way of detail arising out of the combinations of A E I O are met by means of certain mnemonic words, or words coined for the assistance of the memory. The fuller details of their application will constitute another notice.

At present it is sufficient to state, that in (1.) *Barbara*, (2.) *Celarent*, (3.) *Darii*, and (4.) *Ferio*, the figure is the same, viz. :—

Middle major, or Y Z,
Minor middle, or X Y,
Minor major, or X Z.

Hence, in symbols, the previous examples run thus :—

| <i>Barbara.</i> | <i>Celarent.</i> |
|-----------------|------------------|
| A. Every Y = Z. | E. No Y = Z. |
| A. Every X = Y. | A. Every X = Y. |
| A. Every X = Z. | E. No X = Z. |
| <i>Darii.</i> | <i>Ferio.</i> |
| A. Every Y = Z. | E. No Y = Z. |
| I. Some X = Y. | I. Some X = Y. |
| I. Some X = Z. | O. Some X = Z. |

Substitute *man* for Y, *immortal* for X, &c., &c., and you have the syllogisms as they appeared before.

Substitute *any word* whatever for X Y Z, and you have a legitimate conclusion. As a separate proposition, or as a statement of fact, it may be

untrue. But that will be because the premises were incorrect. As a *deduction* from those premises it will be strictly logical.

EXTRACT.

“Logic is a formal science. It takes no consideration of real existence, or of its relations, but is occupied solely about that existence and those relations which arise through and are regulated by the conditions of thought itself. Of the truth or falsehood of propositions, in themselves, it knows nothing and takes no account: all in logic may be held true that is not conceived as contradictory. In reasoning, logic guarantees neither the premises nor the conclusion, but merely the *consequence* of the latter from the former; for a syllogism is nothing more than the explicit assertion of the truth of one proposition *on the hypothesis* of other propositions being true, in which it is implicitly contained. A conclusion may thus be true in reality (as an assertion), and yet logically false (as an inference.)”—SIR W. HAMILTON, *Discussions on Philosophy*, p. 144.

(46.)

Analysis and Synthesis.

It is always useful (and in matters of teaching and learning most especially so) to have a clear notion, not only of the subject under notice, but also of the method according to which we investigate it. It is good to know in what light we see the picture; at what end we take up the staff. For this reason, I pause to remark, that our view of the syllogism has been what is called *analytic* as opposed to *synthetic*. Analysis takes to pieces; Synthesis builds up. Much may be learned from both processes.

Our view, I say, has been wholly analytic. We

started with the largest mass of terms we had—viz. the syllogism. And, of this we considered the propositions first; for the syllogism contained the propositions, the proposition the terms. The syllogism contained the premises and conclusion; the premises and conclusion the majors, middles and minors. With these, the ultimate elements, we concluded. This was to take the watch to pieces.

But we might have reversed the order of our operations, and have begun with the term, forming, out of the terms, the propositions, and, out of the propositions, the syllogism. Had we done this, the watch would have been put together; our method having been synthetic.

Neither Synthesis nor Analysis are words foreign to systematic works on logic; and for this reason they have been noticed.

The following quotation is from the opening of the Second Book of Whately; the Second Book being especially entitled the *Synthetical Compendium* as opposed to the First, which gave the *Analytical Outline*.

Observe, too, the two departments of inquiry to which it refers—Language and Mental Philosophy. They are separate from Logic proper, but closely connected with it. Analysis leads to, Synthesis starts from, them.

EXTRACT.

“There are three operations of the mind which are immediately concerned in argument:—

“1st. Simple apprehension.

“2nd. Judgment.

“3rd. Discourse, or reasoning.

“1. Simple apprehension is the notion (or conception) of any object of the mind, analogous to the perception of the

senses. It is either *incomplex*, or *complex*. *Incomplex* apprehension is of one object or of several, without any *relation* being perceived between them, as of *a man, a horse, cards*; *complex* is of several *with* such a relation, as of *a man on horseback, a pack of cards*.

"2. Judgment is the comparing together in the mind two of the notions (or ideas) which are the objects of apprehension, whether complex or incomplex, and pronouncing that they agree or disagree with each other (or that one of them *belongs* or does not belong to the other). Judgment, therefore, is either *affirmative* or *negative*.

"3. Reasoning (or discourse) is the act of proceeding from one judgment to another founded upon that one, or the result of it.

"Language affords the signs by which these operations of the mind are expressed and communicated.

"An act of *apprehension* expressed in language is called a *term*; an act of judgment a *proposition*; an act of *reasoning* an *argument*."—WHATELY, ii. 1. § 1, 2.

The *syllogism* itself is either analytic or synthetic; or rather the synthetic syllogism (for the ordinary one with which we have hitherto dealt belongs to this division) is capable of being put in an analytic form. And this is what we have been led to anticipate. For has it not been said, that instead of beginning with our premises and ending with our conclusion, and writing *therefore* between the last two propositions, we might have begun with the conclusion, and ended with the premises, writing *because* between the first proposition and the second? Has it not been said that it is only in accordance with *custom* that we write—

All men are mortal,
Socrates is a man,

Therefore,
Socrates is mortal,
instead of—
Socrates is mortal,
Because,
Socrates is a man,
And,
All men are mortal,

or—
Socrates is mortal,
Because,
All men are mortal,
And,
Socrates is a man.

Now, the latter of these syllogisms is analytic. How? Because it begins by taking the whole and then giving the parts it is made of. Synthesis, on the other hand, takes the parts first, the whole last.

(47.)

*Rationale of the Ordinary Syllogism.—Its Terms
viewed as the Names of Classes.—The DICTUM
DE OMNI ET NULLO.*

We may now look back on what we have read about the syllogism with a double view; with the view of ascertaining what portions of it we have considered, and with the view of learning what portions of it we have either overlooked or reserved for future or present notice.

Doing this, we shall find that of the details of its structure we have seen a somewhat large amount, also a fair amount of the terminology used to ex-

press them ; along with which we have a notice of some of the operations in the way of *strengthening*, *conversion*, &c. The symbolic notation, along with the quality and quantity of propositions has not been neglected ; nor yet the value of the several terms. The mnemonic manœuvres for recollecting the differences of figure and mood have been alluded to. Lastly, there has been an exhibition of certain material illustrations in the way of circles, triangles, and squares, on one side, and black and white lines on the other.

Now, these last will help us in what is now coming under notice ; viz. the principle, or *rationale*, of the syllogism, a question that has yet to be considered.

What is the leading or fundamental principle of the ordinary syllogism ? More especially, how is it illustrated by our squares and lines ?

The triangles, circles, and squares shall be noticed first. Let us consider them as filled with points—these points standing for individual objects ; the figures themselves standing for classes. As long as the triangle lies within the circle, and the circle within the square, the points contained in the triangle are contained in the square also. Common sense says this. It is the kernel in the shell, with the embryo of the future plant in the kernel. It is the foot in the stocking, with the stocking in the boot. It is the blood in the artery, with the artery in the body. It is anything, in short, contained by anything else, which something else contains.

It cannot but be in two things at once ; for what is in the nut is in the nutshell that contains the nut. The part of a part is part of any whole

that contains that part. *Socrates* is part of the class of *men*, and *men* part of the class of *mortals*. What, then, must *Socrates* be? What can he be but mortal?

Mutatis mutandis, the same reasoning applies to negative propositions. If the kernel lie outside the shell, the embryo within the kernel must do the same. Hence—

“Whatever is predicated (*i.e.* affirmed or denied) universally of any class of things, may be predicated in like manner (*viz.* affirmed or denied) of anything comprehended in that class.”

This is called the *dictum de omni et nullo*, *i.e.* the rule concerning all and none.

The writer who gives the greatest prominence to the *dictum de omni et nullo* is, perhaps, Archbishop Whately. The writer who gives (if not the least) but little to it is J. S. Mill. I subjoin an extract from each.

EXTRACT.

I.

“In order to trace more distinctly the different steps of the abstracting process by which any particular argument may be brought into the most general form, we may first take a syllogism (*i.e.* an argument stated accurately and at full length), such as the example formerly given, ‘whatever exhibits marks of design, &c.,’ and then somewhat generalise the expression by substituting (as in Algebra) arbitrary unmeaning symbols for the significant terms that were originally used; the syllogism will then stand thus: ‘every B is A; C is B; therefore C is A.’ The reasoning, when thus stated, is no less evidently valid, whatever terms A B and C, respectively, may be supposed to stand for. Such terms may, indeed, be inserted as to make all or some of the assertions *false*; but it will be no less impossible for

any one who *admits* the truth of the *premises*, in an argument thus constructed, to deny the conclusion; and this it is that constitutes the conclusiveness of an argument.

“Viewing, then, the syllogism thus expressed, it appears clearly, that ‘A stands for *anything whatever* that is affirmed of a certain entire class’ (*viz.* of *every* B), ‘which class comprehends or contains in it *something else*,’ *viz.* C (of which B is in the second premiss, affirmed); and that, consequently, the first term (A) is, in conclusion, predicated of the third C.

“Now to assert the validity of this process, now before us, is to *state the very dictum* we are treating of, with hardly even a verbal alteration, *viz.* :—

- “ 1. Anything whatever, predicated of a whole class,
- “ 2. Under which class something else is contained,
- “ 3. May be predicated of that which is so contained.

“The three members into which the maxim is here distributed correspond: to the three propositions of the syllogism to which they are intended respectively to apply.”—*WHATELY, Logic, i. § 4.*

II.

“All ratiocination, therefore, starts from a general proposition, principle, or assumption; a proposition in which a predicate is affirmed or denied of an entire class. The other premiss asserts that something belongs to or is included in the class respecting which something was affirmed or denied in the major premiss.

“It follows that the attribute affirmed or denied of the entire class may (if there was truth in that affirmation or denial) be affirmed or denied of the object or objects alleged to be included in the class: and this is precisely the assertion made in the conclusion.


“Whether or not the foregoing is an adequate account of the constituent parts of the syllogism will be presently considered; but, as far as it goes, it is a true account. It has accordingly been generalised and erected

into a logical maxim. The maxim is, that whatever can be affirmed (or denied) of a class may be affirmed (or denied) of everything included in the class. This axiom, supposed to be the basis of the syllogistic theory, is termed by logicians the *dictum de omni et nullo*."—MILL, i. p. 234.

(48.)

Rationale of the Ordinary Syllogism.—Its Middle Term viewed as a Measure.

The Δ s \bigcirc s and \square suggest the notion of *classes*.

The black and white lines  raise the idea of a *rule* or *measure*.

Of the two illustrations this latter is, perhaps, the less common; the *dictum de omni et nullo* being considered of such importance as scarcely ever to be omitted in logical treatises. The other, however, is the illustration which we find in Watts's *Logic* as an old, and Gilbert's as a new, work.

EXTRACT.

"If the mere perception and comparison of two ideas would always show us whether they agree or disagree; then all rational propositions would be matters of intelligence or first principles, and there would be no use of reasoning, or drawing any consequences. It is the narrowness of the human mind which introduces the necessity of reasoning. When we are unable to judge of the truth or falsehood of a proposition in an immediate manner, by the mere contemplation of its subject and predicate, we are then constrained to use a medium, and compare each of them with some third idea, that by seeing how far they agree or disagree with it, we may be able to judge how far they agree or disagree among themselves. Thus, if there are two lines A and B, and I know not whether they are equal or no, I take a third line C, or an inch, and apply it to each

of them: if it agree with them both, then I infer, that A and B are equal; but if it agree with one, and not with the other, then I conclude A and B are unequal; if it agree with neither of them, there can be no comparison.

“So if the question be, whether God must be worshipped, we seek a third idea, suppose the idea of a Creator, and say:—

“Our Creator must be worshipped,
God is our Creator,
Therefore, God must be worshipped.

“The comparison of this third idea with the two distinct parts of the questions usually requires two propositions, which are called the premises; the third proposition which is drawn from them is the conclusion.”—WATTS (*from GILBART'S Logic for the Million*, iv. 4).

(49.)


Rationale of the Ordinary Syllogism.—Its Terms viewed as expressive of the co-existence of certain Attributes.

Take from Euclid the axiom that—

“Things which are equal to the same thing are equal to one another.”

Instead of *equal* to, write *co-exists* with, so that the axiom run—

“Things which *co-exist* with the same thing, *co-exist* with one another.”

This is the form in Mill's Logic; a form which is illustrated by the *rule*, rather than *class-view*; by  rather than \triangle \circ and \square . Nor are there wanting reasons, notwithstanding the historical importance of the *dictum de omni et nullo*, for preferring the former to the latter.

Things, then, which co-exist with the same thing, co-exist with one another. Such is the principle of the affirmative syllogism ; that of the negative being that—

A thing, which co-exists with another thing, with which other a third thing does not co-exist, is not co-existent with that third thing.

By *co-existence* is meant existence in the same object or class of objects ; by *things*, the *attributes* or *qualities* of such object.

In the first proposition of the syllogism—

All men are mortal,

All heroes are men,

All heroes are mortal,

the import is, that *wherever there is the attribute of manhood there is the attribute of mortality also*, the co-existence, as shown in the wording of the proposition, being as follows :—

In *all* cases of *manhood* there is a co-existent *mortality*.

In *some* cases of *mortality* there is a co-existent *manhood*. It may be that there is in *all*. The proposition, however, only states that it is so in *SOME*. *All men are mortal* OBJECTS ; conversely, *some mortal objects are men*.

Wherever there is either *manhood* or *mortality*, there may be other attributes as well. Of these, the first of our three propositions takes no notice. Thus, with *manhood*, there may be *heroism*, *cowardice*, *virtue*, *vice*, all of which, if they co-exist with *some* manhood, and if *all* manhood co-exist with *some* mortality, must, so far as they co-exist with that manhood, also co-exist with its co-existing mortality.

But, as has already been stated, our first proposition, the only one under immediate notice, tells us nothing about them. It is only the second that does anything for us in this respect.

It is the second (or the *minor*) that tells us that—

All *heroes* are *men*,

by which is meant, that all the attributes that constitute our idea of a *hero* co-exist with some *manhood*; all *heroes* being men, though all *men* are not *heroes*.

But *all* manhood whatsoever, consists with *mortality*, in other words, there is none of the former, without some of the latter.

Hence—all the *hero-hood* that co-exists with the *manhood*, co-exists with the *mortality*, with which the *manhood* co-exists.

And this is what the conclusion tells us *explicitly*; the premises having *implied* it, *i.e.* contained *implicitly*, *i.e.* as a thing folded up in them.

In = *in*, and *plicat-us* = *folded*; Latin words both. *Ex* = *out*. *Implicit* = *wrapped up IN*; *explicit* = *with the folds done OUT*.

(50.)

Rationale of the Ordinary Syllogism.—The Middle Term always in the Premises, and never in the Conclusion.

§ Still holding to our old syllogism—

All ~~men~~ are mortal,

All *heroes* are men,

All *heroes* are mortal,

(*Barbara*,)

let us keep our attention on its *middle term*, *i.e.* on the word *man*.

It is, essentially, *a means to an end*—nothing more. As the name of a class, it contains such contents as it has solely for the purpose of enabling them to be placed in some other class. As a rule, or measure, it is thrown aside when it has effected its measurement. Under such conditions how can it show itself in the conclusion? The conclusion contains nothing but results—the equalities, or co-existences, that the rule, or survey, determined—the individuals that the smaller class gave to the larger one. The middle term, then, cannot but be absent from the conclusion.

But this is only another way of saying (its necessity being supposed to be proved) that it must appear in the premises. And this is what it invariably does.

It must appear in the premises not only once, but twice.

It must appear in the premises *not* only twice, but each appearance must be made in a different proposition—*i.e.* one in the major, and one in the minor.

If it were not so we could have none of the necessary comparisons. To predicate of *mortal*, that it is anything except *mortal*, requires two *different* terms to the proposition; *mortal* is *mortal*, being a useless truism. But of these two different terms one must be a new one; *i.e.* different from those of the conclusion. If not, we only get the conclusion repeated with, or without, variations, *e.g.*:—

Heroes (*all*) are mortals,

Mortals (*some*) are heroes.

There is nothing of much use in this.

So much for the place of the middle term in one of the premises. How does it show itself in the other? The *minor* term (*heroes*) we have ready to our hand. But this we cannot repeat. That were to construct a truism; *e. g.*

Heroes are heroes.

Nor yet can we attach the major (*mortal*) to it. That were to repeat the conclusion.

Nor yet can we bring in a wholly fresh word. That were to abolish the comparison altogether.

Man = mortal,

Hero = angel,

what can follow from this? Nothing.

The only second term that we can introduce is the middle term; which we may now say has been shown to be—

1. Repeated;

2. Appearing, each time, in a different proposition;

3. Neither of those propositions being the conclusion; but (on the contrary) the premises, and nothing but the premises.

If this exposition appear somewhat mechanical (as it really is), let it be suggested that the positions for the middle term which it illustrates are of great importance, and that it is to give these positions (simply as details of structure) full prominence, rather than to exhibit the disposition of the terms of a syllogism in a general and scientific manner, that the previous notices have been made.

(51.)

The Place of the Middle Term in the several Figures.
—The Figures four in Number.

§ Let us still keep the middle term in our minds ; even though at the commencement of our forthcoming notices, it occupies no very prominent position. It will appear towards the end of them.

The order of the *terms* of a syllogism has been already considered (§ 36).

It has also been stated that a difference in the arrangement constitutes a difference of *figure*.

How many of these arrangements, *i.e.* how many syllogistic figures, are there? That depends upon what we mean by *figure*. The number of combinations and permutations capable of being effected by ringing changes on the one *major*, one *minor*, and two *middles*, the terms of the premises of a syllogism, is a matter of arithmetic. They are limited, and definite, and can be ascertained *à priori*. The number of combinations and permutations that are available for the purposes of syllogistic reasoning is a special matter of logic. One is one thing, the other another. They may or may not agree. *All* the combinations of *major* and *middle*, *middle* and *minor*, may be logical ; or only *some* of them may be so. Hence, *figure* may mean all the combinations of *major*, *middle*, &c., that can be effected, or it may mean only those that contribute to the formation of conclusions. The former gives us the *possible*, or arithmetical, the latter the *actual*, or logical, forms.

Such is the preliminary distinction. How does it

apply? At the present moment it is no distinction at all. At the present moment, and ever since the time of Galen, *all* the arithmetical combinations, are also, one and all, logical. Between, however, the time of Galen and Aristotle, there was one of them which seemed to lead to no conclusion at all, *i.e.* to be extra-logical. That this was only apparent, and that it was a real logical *figure*, is said to have been discovered by the philosophers just named.

The distinction, then, in question between the logical and arithmetical combination of the terms of a syllogism is historical rather than scientific. As such we have noticed it. We have noticed it also for a reason which will appear in the sequel.

To proceed, however, to our present details—the number of figures is four, the full arithmetical number. We can ascertain them *à priori*. There are two possible changes for the *major* proposition, and two for the *minor*—two for each, and no more than two.

1.

*Major term, middle term,
Middle term, major term.*

2.

*Minor term, middle term,
Middle term, minor term.*

These give—

FIRST FIGURE.

All men are mortal,
All heroes are men,
All heroes are mortal;

$$\begin{array}{c}
 \text{or,} \\
 \left. \begin{array}{l} \text{Middle, major,} \\ \text{Minor, middle,} \\ \text{Minor, major ;} \end{array} \right\} \text{ or } \left\{ \begin{array}{l} \text{X Z,} \\ \text{X Y,} \\ \text{Y Z.} \end{array} \right. \\
 \text{(Barbara.)}
 \end{array}$$

SECOND FIGURE.

All true patriots are friends to religion,
 Some great statesmen are not friends to religion,
 Some great statesmen are not true patriots ;

$$\begin{array}{c}
 \text{or,} \\
 \left. \begin{array}{l} \text{Major, middle,} \\ \text{Minor, middle,} \\ \text{Minor, major ;} \end{array} \right\} \text{ or } \left\{ \begin{array}{l} \text{Z Y,} \\ \text{X Y,} \\ \text{X Z.} \end{array} \right. \\
 \text{(Baroko.)}
 \end{array}$$

THIRD FIGURE.

All men are mortal,
 All men are rational,
 Some rational beings will die ;

$$\begin{array}{c}
 \text{or,} \\
 \left. \begin{array}{l} \text{Middle, major,} \\ \text{Middle, minor,} \\ \text{Minor, major ;} \end{array} \right\} \text{ or } \left\{ \begin{array}{l} \text{Y Z,} \\ \text{Y X,} \\ \text{X Z.} \end{array} \right. \\
 \text{(Darapti.)}
 \end{array}$$

FOURTH FIGURE.

Whatever is expedient is conformable to nature,
 Nothing conformable to nature is hurtful to society,
 Whatever is hurtful to society is not expedient ;

$$\begin{array}{c}
 \text{or,} \\
 \left. \begin{array}{l} \text{Major, middle,} \\ \text{Middle, minor,} \\ \text{Minor, major ;} \end{array} \right\} \text{ or } \left\{ \begin{array}{l} \text{Z Y,} \\ \text{Y Z,} \\ \text{X Y.} \end{array} \right. \\
 \text{(Camenes.)}
 \end{array}$$

All the *figures* are equally true ; a fact which

follows from the formal character of the science of logic. Its truths arise from relations. As such they are necessary ; and in necessary truths there are no degrees.

But are they all equally clear ?

The answer to this has been already suggested. The first three are said to have been discovered some three hundred years before the fourth ; which, certainly, looks as if they were not.

Are they all equally *direct*, *i.e.* do they all come under the immediate application of the *dictum de omni et nullo*, or its equivalents ? The extent to which they do this has, doubtless, something to do with their clearness ; but it is a question which may stand over for a while.

What now claims our attention is the fact that—

The four *figures* are only so many names for so many places for the middle term.

1. In the *first*.—The middle term is subject in the major, and predicate in the minor premiss.

2. In the *second*.—Predicate in both.

3. In the *third*.—Subject in both.

4. In the *fourth*.—Predicate in the major, subject in the minor.

Should it be easier for us to remember numbers than names, we may say that—

In the first figure, the middle term is in 1 and 4, *i.e.* that it is in the first and third places of the syllogism. Or, we say that it is 1 by 4.

In the second it is 2 and 4, or 2 by 4.

In the third, 1 and 3, or 1 by 3.

In the fourth, 2 and 3, or 2 by 3.

In the other places we have, of course, one of the other two terms—the major in the major, the minor

in the minor premiss. Hence, in knowing the place of the middle term, we also know that of the other two. Thus—

1. If the middle term be in 1 and 4, the major must be in 2, and the minor in 3.

2. If the middle be in 2 and 4, the major is in 1, and the minor in 3.

3. If the middle be in 1 and 3, the major must be in 2, and the minor in 4.

4. If the middle be in 2 and 3, the major must be in 1, and the minor in 4.

(52.)

The Moods.—Mood and Figure.—A Real and Rational Relation of the Middle Term essential to the Perfection of the Syllogism.

Let us still keep the middle term in our minds, &c.

The order of the *propositions* of a syllogism has been already considered (§ 35).

It has also been stated that a difference in the arrangement constitutes a difference of *mood*.

How many of these arrangements, *i.e.* how many syllogistic moods, are there?

That depends on what we mean by *mood*.

All this (and more might be added) is what we read at the opening of the preceding section. It is repeated, however, because, *mutatis mutandis*, the main part of what applies to figures applies to moods also.

There is, however, this difference. *All* the combinations of *middle*, *minor*, and *major* (of Y X Z)

in arithmetic were logical combinations also, *i.e.* they were all used in syllogism. Of the moods, *i.e.* the combinations of universal or particular, affirmative or negative (A E I O), only *eleven* are logical.

Can each of these eleven moods appear in each of the four figures? If they can, the number of syllogisms is $11 \times 4 = 44$. But they cannot. Their distribution amongst the figures is as follows:—

1. In the first figure the moods are, A A A—E A E—A I I—E I O.

2. In the second, E A E—A E E—E I O—A O O.

3. In the third, A A I—I A I—A I I—E A O—O A O—E I O.

4. In the fourth, A A I—A E E—I A I—E A O—E I O.

Written out, symbolically, and in full the moods and figures run as follows:—

FIRST FIGURE.

Barbara.

A. Every Y is Z.

A. Every X is Y.

A. Every X is Z.

Celarent.

E. No Y is Z.

A. Every X is Y.

E. No X is Y.

Darii.

A. Every Y is Z.

I. Some X's are Y's.

I. Some X's are Y's.

Ferio.

E. No Y is Z.

I. Some X's are Y's.

O. Some X's are not Y's.

SECOND FIGURE.

Cesare.

E. No Z is Y.

A. Every X is Y.

E. No X is Z.

Festino.

E. No Z is Y.

I. some X's are Y's.

O. Some X's are not Z's.

Camestres.

- A. Every Z is Y.
 E. No X is Y.
 E. No X is Z.

Baroko.

- A. Every Z is Y.
 O. Some X's are not Y's.
 O. Some X's are not Z's.

THIRD FIGURE.

Darapti.

- A. Every Y is Z.
 A. Every Y is X.
 I. Some X's are Z.

Felapton.

- E. No Y is Z.
 A. Every Y is X.
 O. Some X's are not Z's.

Disamis.

- I. Some Y's are Z's.
 A. Every Y is X.
 I. Some X's are Z's.

Bokardo.

- O. Some Y's are not Z's.
 A. Every Y is X.
 O. Some X's are not Z's.

Datisi.

- A. Every Y is Z.
 I. Some Y's are Z's.
 I. Some X's are Z's.

Ferison.

- E. No Y is Z.
 I. Some Y's are Z's.
 O. Some X's are not Z's.

FOURTH FIGURE.

Bramantip.

- A. Every Z is Y.
 A. Every Y is X.
 I. Some X's are Z's.

Dimaris.

- I. Some Z's are Y's.
 A. Every Y is X.
 I. Some Z's are X's.

Camenes.

- A. Every Z is Y.
 E. No Y is X.
 E. No X is Z.

Fesapo.

- E. No Z is Y.
 A. Every Y is X.
 O. Some X's are not Z's.

Fresison.

- E. No Z is Y.
 I. Some Y's are X's.
 O. Some X's are not Y's.

Each and all of these can be treated like A A A, E A E, &c., above. Indeed, they *have* so been treated, their mnemonics running—

First figure—bArbArA, cElArEnt, dArII, fErIO.

Second figure—cEsArE, cAmEstrEs, fEstInO, bArOkO.

Third figure—dArAptI, dIsAmIs, dAtIsI, fElAptOn, bOkArdO, fErIsOn.

Fourth figure—hrAmAntIp, cAmEnEs, dImArIs, fEsApO, frEsIsOn.

Such are the mnemonics for the syllogisms in mood and figure. The form, however, in which they are best remembered is that of the four Latin hexameters which will be given in the next section. At present, observe that—

In the fourth figure (the last discovered, and, as such, apparently the least clear) all the conclusions but one are particular, and that one negative; that—

In the third, all are particular; three negative, three affirmative; that—

In the second, all are negative; two universal, two particular.

It is in the first only that we have all four kinds—negative, particular, universal, and affirmative. It is in the first only that we have any *universal* affirmative conclusion at all. It is in the first only that we have (as aforesaid) the direct application of the *dictum de omni et nullo*. The first figure, in short, is, at once, the clearest and the most comprehensive. In the first, we have the perfection of the syllogism; the syllogisms belonging to it being actually called *perfect* as opposed to the *imperfect* ones of the other three. No one reduces a syllogism of the first figure to any of the others. Many reductions are made from figures II., III., and IV., to figure I.

So much then, in the way of honour and glory

G

to figure I., with its *barbara*, *celarent*, *darii*, and *ferio*.

If we examine the reasons of this perfection, we shall find that they lie, to a great extent, in the place taken by the middle term.

(53.)

The Mnemonics.—What is meant by their Consonants.—Reduction.

§ The metrical form of the mnemonic lines of the last section is now due ; along with which a further explanation of their contents will be given. The lines themselves are as follows :—

Barbara, celarent, darii, ferioque, prioris.

Cesare, camestres, festino, baroko secundæ.

Tertia darapti, disamis, datisi, felapton.

Bokardo, ferison, habet ; quarta insuper addit.

Bramantip, camenes, dimaris, fesapo, fresison.

These, are Latin hexameters—at least, they pass for such. And this we should remember : otherwise there will be more than one of our coinages of doubtful quantity. It is only by the metre, that we are taught to pronounce barōko instead of barōko, disāmis instead of disāmis, datīsi instead of datīsi, ferison instead of ferison, camēnes instead of camēnes, dimāris instead of dimāris, fesāpo and fresison instead of fesāpo and fresison.

That the *vowels* denote the moods has already been stated, and there is not a vowel in the whole list that is superfluous.

The vowels denote the mood, and nothing else. What tells us the figure ? This we learn from the

context, and it is all that the context, consisting of but few truly Latin words, does tell us. With *prioris* (the *first*), *secundæ* (the *second*), *tertia* (the *third*), and *quarta* (the *fourth*), we must understand or supply *figura* (or *figuræ*) = *figure*.

But the consonants—what is their function? Have they any? May they not be merely arbitrary?

Let us first ask what there is that they *can* teach us, *i.e.* what there is beyond the two facts of mood and figure which we have already been taught. De Morgan calls the mnemonics under notice, “magic words—words which I take to be more full of meaning than any that were ever made.”—(*Formal Logic*, p. 130.) Now words of this kind should speak through their every letter—consonants as well as vowels. And so they do. They speak to the phenomena of conversion and reduction, telling us what sort of conversions are effected, *i.e.* whether they are simple or accompanied by weakening or strengthening. They tell us, too, to what forms others are reduced. It is not for nothing that *cesare* begins with the same letter as *celarent*, and *darri* and *darapti* with D. Observe, too, how *baroko*, &c., begins like *barbara*, and *felapton* like *ferio*.

Whatever may be the case with the remainder, none of the consonants at the *beginning* of the words are arbitrary. On the contrary, they connect the words to which they stand as initials with each other, *e.g.* *cesare* with *celarent*; and that for the purposes of reduction. *Cesare*, when reduced, is reduced to *celarent*.

With the exception of the initials, however, all the other consonants of the first line *are* arbitrary;

these being *b* (when in the middle of a word as the second *b* in *barbara*), *r*, as in *barbara*, *celarent*, *darii*, and *ferio*, and *l*, *n*, and *t* as in *celarent*. Add to these from the fourth line the *d* in *bokardo*; which (unlike the *d* in *darii*, *dimaris*, *datisi*, &c., full of meaning) has no special signification. The only use, then, of *b* and *d*, when not initial, as well as of *l*, *n*, and *t*, is to improve the shape and sound of the words in which they occur. They generally improve the sound, and sometimes help the metre.

The remaining four—*m*, *s*, *p*, and *k* are *never* used indifferently. Hence, in *disamis* and *fesapo* every letter has not only its use but its meaning also. In *disamis* we learn from

D, that the syllogism is reducible to *darii*; from

I A I, that its premises are particular affirmative and universal affirmative followed by a particular affirmative conclusion; from

S, that the major premiss, denoted by I, requires, in order to effect its reduction, that its terms should be transposed; from

M, that the minor premiss expressed by A, and the conclusion expressed by I must be transposed; and, finally, from the second

S, that the terms of the *conclusion* must be transposed.

In like manner, *fesapo* says that the conversion must be to *ferio*; and that the major premiss must have its terms transposed. But what is the meaning of *p*? It is a new letter, and requires explanation. It means as much as *s*, and something more. It means not only, that the terms of the proposition expressed by *a* are to be transposed, but

that their signs are to be changed as well. It means, for instance, that such a proposition as *all men are mortal*, is to be converted, not into

All mortals are men,

which is illegitimate, but into

Some mortals are men.

K still remains to be explained. It means that BaroKo and BoKardo must be reduced by a peculiar process; a process which, in a sketch like the present, finds no place.

All the significant non-initial consonants, then, express conversion and reduction.

S expresses conversion in its simplest form, and, doubtless, stands for *simplex, simplex conversio, or conversio simplex*.

P, which denotes conversion accompanied by either strengthening or weakening is the first letter of *per accidens*, the technical name for conversions of this kind.

M, as I imagine, = *mutatio* = *change*, and denotes the conversion, or transposition, of *propositions*—not merely of *terms*, but of whole combinations of terms, premises, and, even, conclusions.

K, *perhaps* (I have not the knowledge that enables me to speak with confidence), is used for the exceptional cases of BaroKo and BoKardo, from the fact of its being but half a Latin letter—an exceptional element in the Latin alphabet.

The greatest amount of conversion occurs in the several reductions of the syllogisms of the fourth figure. For this reason the two forthcoming examples are taken therefrom. The first gives us a

process which, in practical logic, never occurs, viz. the reduction (if so it may be called) of a syllogism in figure I. to a syllogism in figure IV.; the change being, always, in the other direction, *i.e.* from IV. to I. The present section, however, is meant to anticipate one in the sequel; and for this reason, a secondary object is aimed at. The relation between the first and last of the four figures is so important, that I shall exhibit them by effecting a to-and-fro conversion; *i.e.* a conversion from the perfect into the imperfect, as well as one from the imperfect to the perfect.

1.

OPERATIONS ON BARBARA.

Write—

- A. All men are mortal,
- A. All heroes are men,
- A. All heroes are mortal,

remembering that the mnemonic of it is BARBARA.

Eviscerate *Barbara*; *i.e.* take out its middle consonants, leaving spaces between the vowels, to be filled up as occasion requires—BA.A.A.

Operate on the syllogism, beginning with the *conclusion*, by transposing its terms. But this cannot be done without weakening the subject, the converse of *ALL men are mortal* being *SOME mortals are men*. However, as this weakening can be effected, our syllogism now runs—

- A. All men are mortal,
- A. All heroes are men,
- I. Some mortals are heroes;

a change having been made which we must now

express by acting on the BA.A.A,—the skeleton of the eviscerated *Barbara*,—and changing the third A into I, adding P. This will give BA.A.IP; a form which shows that a *universally* affirmative conclusion has been weakened by conversion into a *particular* one, the conversion, with its concomitant change of *all* into *some* being denoted by P.

Proceed, moving from the conclusion to the minor premiss, moving *upwards*, so to say. Proceed, and change. Transpose the premises. This will give—

A. All heroes are men,

A. All men are mortal,

I. Some mortals are heroes.

Express this change in the order of the propositions by its proper letter, M, which must be written between the first two A's in the now metamorphosed *Barbara*,—BAMAIP,—every letter of which word is significant.

Finish, however, with improving its form by means of the letters *r*, *n*, *t*, *n*, *d*, or *b* — say by means of the first three. In short, write BRAMANTIP, or (with the non-significant letters in italics) BRAMANTIP.

2.

OPERATIONS ON CAMENES.

The mnemonic for the second syllogism of the fourth figure is CAMENES, every letter of which tells a tale.

To begin with C. This informs us that *Celarent* is the form to which it is reducible.

A. E. E. These denote that the major premiss is universally affirmative, but that the minor and the

conclusion are universally negative. But this order (A E E) is not that of *Celarent* (which is E A E). And now—

M brings its quota of information. It says that the two premises between which it stands must change places—a transposition which actually gives us E A E.

N, as aforesaid, says nothing, but—

S bids us effect a *simple* conversion (*i.e.* a conversion without either weakening or strengthening) of the *terms* of the conclusion—a *simple* conversion. Had it been accompanied by any further change, we must have written *p*; *i.e.* CAME_nEP, instead of (which we have now) CAME_nES.

Follow the directions thus given, and out of the following in *Camenes*—

A. Whatever-is-expedient is conformable to Nature,

E. Whatever-is-conformable-to-Nature, is-not hurtful to society,

E. Nothing-hurtful-to-society is ever expedient, you get

E. Whatever-is-conformable-to-Nature is-not hurtful to society,

A. Whatever-is-expedient is conformable-to-Nature,
therefore

E. Whatever-is-expedient is-not hurtful-to-society, in *Celarent*: *i.e.* in figure I.

These are fair samples of the amount of operations required in order to reduce either I. to IV., or IV. to I.

(54.)

The Middle Term, as Contained and Containing.
—Perfection of the First Figure.

§. The figure most in use is the First.

Wherever conversion is effected, it is always from one of the last three figures to the first—never *vice versâ*.

No wonder. The first figure is the clearest and the most comprehensive. It contains Barbara, the only syllogism that gives a universally affirmative conclusion. Now,

In the first figure the middle term is eminently what its name denotes—*middle*.

In the two propositions

All men are mortal,

All heroes are men,

what is the value or magnitude of the middle term, *man*? What does it mean? It means more than *hero*, less than *mortal*.

All heroes are men, but, as *all men are not heroes*, the class of *men* is the larger of the two. There are some *men* who are not *heroes*.

All heroes are men,

but only

Some men are heroes.

Mutatis mutandis: when we say all *men are mortals* we state that the collection of *men* is smaller than, and contained in, the collection of *mortals*.

All men are mortal,

but only

Some mortals are men.

G 3

Here—

Mortals = the *major*, which *contains*

Men, or the *middle*, which, though contained by Mortals, *contains*

Heroes, or the *minor*, contained by both.

Viewed in respect to the collection of *mortals*, the collection of *men* is *contained*.

Viewed in respect to the collection of *heroes*, the collection of *men* is *containing*.

Such are the relations of the middle term, as the name of a class; *contained* and *containing* being the words that express them.

When the middle term is *containing* and *contained* it is both *really* middle, and *rationally* middle; *i.e.* it is what its name denotes, and that without disturbing the names of either of its two associated terms—*major* and *minor*.

How far this is the case with the other three figures remains to be seen. How far the *dictum de omni et nullo* applies *directly* to the other figures remains to be seen also. That it applies directly enough to figure I. is obvious.

But, before we see the indirect character of its other applications, the section upon the *Quantity of the Predicate* (§ 39) must be brought back to our memories.

(55.)

Contained and Containing capacities of the Middle Term.—Predicates Containing, Subjects Contained, Terms.

§. In a universally affirmative proposition the predicate is particular. *All men are mortal*, but

only *some mortals are men*. This has been stated more than once before, and that explicitly. But certain deductions from it have not been so explicitly stated. *Some* and *all* have different magnitudes according to the term to which they are attached. With a predicate they mean one thing, with a subject another.

To say *all men are mortal* is to say *some men are mortal*—this and something more. It is to say that, if *all men are mortal*, *some* men are so *à fortiori*. The greater includes the smaller, the whole the parts. But these powers of *all* and *some* are only found when they apply to the same word. When we come to such expressions as *man is mortal*, their import changes.

When one thing is affirmed of another, the predicate gives the larger, the subject the smaller class of objects. A collection, consisting of *all* the men in the world, makes but a *part* of the collection of all its mortals, or mortal beings.

Hence, particular predicates contain universal subjects; this being but another way of saying that the *whole* of a smaller class is no more than the *part* of a larger one; in other words, subjects, *as such*, are contained in predicates *as such*. Hence, when a middle term is a predicate, it *contains*; when a subject, it is *contained*.

Such is the case when the proposition is, at one and the same time, universal and affirmative. When the proposition is, at one and the same time, universal and affirmative, the predicate is necessarily larger than the subject. From this it follows that wherever the middle term is a predicate, it is, *ipso facto*, larger than the subject and contains the sub-

ject. On the other hand, wherever it is a subject, it is smaller than the predicate and contained by it.

Now, in *Barbara*, the middle term is not only a subject, but the subject of the major proposition. What would it be if it were the subject of the minor one? It would be something awkward, or, at any rate, something that would bring in limitations or complications of some kind, inasmuch as it would be in its wrong place. It would be *subject*, and small, where it ought to be *predicate*, and large. As a middle term, it ought to contain the minor ; as a subject, it would be contained by it.

(56.)

Imperfection of the Second Figure.—The Middle Term not really Middle.

If the predicates and subjects in universally affirmative propositions be essentially, and, *as predicates and subjects*, of different capacities, it is obvious that a middle term, which is only a predicate, is below its functions ; *i.e.* that it is incompetent to perform the double duty of containing and being contained.

Nevertheless, all the middle terms of the Second figure are predicates, and predicates only. They all, in universally affirmative propositions, *contain* ; they none of them are *contained*. If this be the case, where are our majors ? Nowhere. They are minors.

It is obvious that complications or limitations of some sort must come out of this imperfection in the

function of the middle term of the second figure. And come they do. There is no such a thing (as has already been stated) throughout the figure as a universally affirmative conclusion. There is no affirmative conclusion at all. The conclusions are, one and all, negative.

(57.)

Imperfection of the Third Figure.—The Middle Term not really Middle.

§ If predicates and subjects in universally affirmative propositions be, essentially, and *as predicates and subjects*, of different capacities, a middle term, that is only a subject, must be below its functions, *i. e.* incompetent to do the double duty of containing and being contained.

Nevertheless, all the middle terms of the Third figure are subjects, and subjects only. They all, in universally affirmative propositions, are *contained*. None *contain*. If this be the case, where are our minors? They are all majors.

We foresee what is to come of this. In the third figure, where the middle term is only the subject, we expect only negative or particular conclusions. And this is all that we shall find.

(58.)

Imperfection of the Fourth Figure.—The Middle Term not rationally Middle.

The reasons for the Second and Third figures being imperfect fail when applied to the Fourth.

Yet the Fourth is, if anything, the most imperfect figure of all. That it was the longest in being discovered has already been stated. It has also been suggested that it was no very valuable discovery, when made. The fourth figure is the one which is most generally, either avoided or reduced. Yet it has one of the characteristics of the first—the model first, the perfect first. Its middle term is truly middle. It stands between its major and its minor. What is this but mediety or middlehood? It stands between two other classes, and it contains intermediate quantities—more than one, less than the other. Is not this enough? It is enough, perhaps, to make a middle, if we look for mediety, or middlehood, alone. But we look for more than this. We must get not only an intermediate *middle*, but a greater *major*, and a smaller *minor*. But this the fourth figure denies us.

In the fourth figure the middle term is the predicate of the major proposition, the major term being, of course, the subject. Now, term for term, the predicate, as opposed to the subject, gives the larger, or containing, class. Here, however, this larger, or containing, class is represented by the middle, or smaller, term; whilst, *vice versâ*, the major, or nominally larger term, is the subject, or contained, term.

Mutatis mutandis, this contradiction repeats itself in the minor proposition. There, the middle term, being the subject, is smaller than, and *contained* in, the minor; which it ought, nominally, to *contain*.

It is not, then, too much to say, that *middles* of this kind are irrational *middles*. As *middles* alone

they stand fairly enough ; but they terribly dislocate their neighbouring majors and minors. In fact, they convert the one into the other.

In figure IV. all the conclusions are either particular or negative. This is what we expect ; and that a great deal of manœuvring in the way of conversion and reduction is necessary, in order to transfer its syllogisms into figure I., has been seen. In fact, figure IV. is figure I. inverted.

If we now inquire as to the amount of disturbance manifested in the imperfect figures, we shall find that it is as follows :—

For Figure II—a contained instead of a containing *major*, and a containing instead of a contained *middle*.

For Figure III—a containing instead of a contained *minor*, and a contained instead of a containing *middle*.

For Figure IV—a containing *minor* and a contained *major*.

It is obvious that, wherever there is an abnormal middle term, there are limitations and complications to match.

(59.)

Recapitulation.

We may now recapitulate our statements upon the place and function of the middle term.

Its place is in the premises, as opposed to the conclusion ; in which last its presence was impossible. The conclusion gave the results of a measurement or classification, the premises the act of measuring or

classifying. The result being obtained, the means by which it is brought about are kept back.

In the premises it had to appear twice; there being two things to which it served as a means of measurement or classification. It had to determine that (for instance) *man* was *mortal*, and, also, that *heroes* were *men*.

It had not only to appear twice, but each appearance had to be made in a different premiss. Were it not so, it must have appeared twice in the same, and that would have given us nothing but a truism — *men are men*.

Thus far its place was a matter of absolute necessity; inasmuch as, unless the previous conditions were complied with, there would have been no syllogism at all. The following were necessary for a *perfect* one.

The middle term should be really *middle*, *i.e.* it should contain one of the remaining terms and be, itself, contained by the other.

But, to make it this, a simple place in two different propositions was not enough. For the middle term to be really middle it was necessary for it to be a subject in one of its places and a predicate in the other.

Nor was it enough for it to be *really* middle. It must be really and *rationally* so. For though a place between a *major* and a *minor* may make a *middle*, the *majors* and *minors* themselves may be unreal—the *major* being smaller, instead of larger, than the *middle*; the *minor*, larger instead of smaller.

Hence, for middles to be really and rationally *middle*, their *majors* and *minors* must be real and

rational also ; and this can only occur where the major *contains*, and the *minor* is *contained*.

But the former of these conditions (or the major containing the middle) can only be found where the major is predicate and the middle subject ; the predicate being, essentially, the larger or containing term, the subject the smaller or contained.

And the latter (or the middle containing the minor) can only be found where the minor is subject, *i. e.* the smaller term.

But, *ex vi termini*, it is only in *major* propositions that we find *major* terms ; and *vice versâ*. Hence it is only where the middle term is subject in the major and predicate in the minor, that it is really and rationally, at one and the same time, a contained and containing term.

(60.)

Rules.

§ 1. The middle term must enter universally in, at least, one of the premises.

This means, that if neither premiss contain a middle term universally, it is no premiss at all.

2. From two negative premises no conclusion can be drawn.

This means, that if both premises are negative, they are no premises at all.

3. From two particular premises no conclusion can be drawn.

This means, that if both premises are particular, they are no premises at all.

4. No term in the conclusion can be more general than it was in the premises.

This means, that conclusions which give out more than the premises supplied are no conclusions at all.

5. If one premiss be particular the conclusion must be particular.

6. If one premiss be negative the conclusion must be negative.

(61.)

The Ordinary Syllogism called Aristotelian.

The syllogism, when it is framed in obedience to the rules just laid down, and when it takes the form just exhibited, is conveniently called the *Aristotelian* syllogism. And it is called so by numerous important writers. The term is, by no means, unexceptionable; neither is it open to any very grave objections. It is intelligible and convenient, and not more incorrect than the generality of terms of the same kind.

The reason for the name is scarcely to be found in the fact of Aristotle being answerable for its present form; inasmuch as the ordinary syllogism is framed according to a series of hints and inferences miscellaneously distributed over his writings, but put into form and developed by his commentators rather than according to anything systematically exhibited by the master himself.

Again, the fourth figure is attributed to Galen. This, alone, subtracts a certain number of formulæ from the Aristotelian list of moods and figures—

supposing, even, that all the others are due to Aristotle. The accuracy or inaccuracy of the current doctrine respecting Galen's share in the development of the syllogism as it stands at present is not very important. The common view, even if incorrect, is, to a certain extent, against the statement that the syllogism called *Aristotelian* took its name from the fact of Aristotle's having given it its shape, and sent it forth into the world under the sanction of his great and influential name.

The truer reason for the use of the word lies in the extent to which, during the prevalence of the Aristotelian philosophy, the syllogism in, as near as can be, its present form was the great instrument of reasoning with the schoolmen and philosophers akin to them. It was according to the rules of the syllogism that the vast majority of theological, moral, and other questions were investigated. Meanwhile, the authority of Aristotle was all-powerful; and it was in accordance with his formulæ, either expressed or implied, that men either actually reasoned, or imagined that they did.

The name *Aristotelian*, then, as applied to the ordinary syllogism, is convenient. It is also current. Whether, however, the rules upon which the syllogism is framed are, each and all, actually of Aristotelian origin, is another question.

Are they exceptionable or unexceptionable, sufficient or insufficient, capable or incapable of improvement? Is anything admitted that ought to be excluded? Is anything excluded that ought to be admitted? This is to be seen.

(62.)

Certain Aristotelian Syllogisms over-strong.

In propositions like—

- I. Some men are heroes,
- A. John is a man,
- A. John is a hero,

the conclusion is too strong for the premises ; or rather the premises are too weak for the conclusion. In other words, there is a violation of the fourth rule of the 60th section ; the conclusion being more general than the premises ; the conclusion being universal, the premises being partly universal, and partly particular. In consequence of this the three sentences under notice are neither more nor less than three separate and unconnected propositions. They are anything but a syllogism. They only take the guise of one.

Upon combinations of this kind enough, and, perhaps, more than enough, has been said. There is something, however, to be said concerning their contraries. What is the result when the premises are too *strong* for the conclusion, or rather the conclusion is too *weak* for the premises ? In other words, what takes place when the limitations of our fourth rule are not only observed, but observed too strictly ? What takes place when the last of three propositions is a conclusion, and something more ?

This is, by no means, an irrelevant question.

Whether the reader have observed it or not, more than one instance of these over-strong conclusions has been laid before him. Have not the examples in Darapti been of this kind? When we wrote—

- A. *All men are mortal,*
- A. *All men are rational beings,*
- I. *Some rational beings are mortal,*

there was an unnecessary expenditure of strength in the major proposition. If we had simply said—

- I. *Some men are mortal,*

we should have said enough for our conclusion. Everything beyond this was a superfluity. It proved the case, but it proved it something more.

It may be said, however, that in this there is neither harm nor inconvenience, that a conclusion which is true concerning a whole is true concerning a part of that whole. It may be said, in short, that superfluities do no mischief—*superflua non nocent*. On the other hand, however, formulæ ought not to be multiplied unnecessarily, and what is Darapti but an unnecessary appendage to Disamis and Datisi? which is—

- I. *Some men are mortal.*
- A. *All men are rational beings.*
- I. *Some rational beings are mortal.*

or—

- A. *All men are mortal.*
- I. *Some men are rational beings.*
- I. *Some rational beings are mortal.*

The inference is the same, whatever be the order of the premises. Of these, *one*, provided it be

universal, will give a particular conclusion. *Two* will do no more.

It is clear, then, that there are such things in Logic as over-strong conclusions, conclusions which a smaller amount of premiss would have given equally well.

EXTRACT.

"Several of the usual syllogisms are more strong than need be in the premises, in order to produce the conclusion. Thus,* $Y) X$ and $Y) Z$ being admitted as premises, the necessary conclusion is $X Z$. But if $Y) X$ be weakened into $Y X$, the same conclusion follows. If we call a syllogism *fundamental*, when neither of its premises are stronger than is necessary to produce the conclusion, it is obvious that every fundamental syllogism which has a particular premise, gives at least as strong a conclusion when that particular is strengthened into a universal. But, except when strengthening the premise also enables us to strengthen the conclusion, in which case we have a new and different syllogism, it seems hardly systematic to mix up with fundamental arguments, syllogisms which have quantity or quality more than is necessary for the conclusion."—DE MORGAN, *Formal Logic*, p. 77.

Admit the truth of the last sentence in this extract, and you admit that an exception lies against one, at least, of the formulæ of the ordinary syllogism.

An exception lies against it on the score of its being over-strong.

* According to the notation of the work here quoted $Y) X$, &c. = *every* Y , whilst $Y X$ = *some* Y is X .

(63.)

Certain Aristotelian Syllogisms over-strong.—
Conclusions A FORTIORI.

With a clear notion of the difference between sufficiency and over-strength, we may now consider the import and suggestions of the following imaginary

DIALOGUE.

Examiner.—What is the predicate in the major proposition of this syllogism?

—Elephants are stronger than horses;
 Horses are stronger than men;
 Elephants are stronger than men.

Hasty student (at once).—Horses.

Cautious student (after a pause).—Stronger than horses.

Examiner.—The latter answer is the right, the former the wrong, one. *Horses* is the subject of the minor, *stronger than horses* the predicate of the major, proposition. What follows from this?

Hasty student.—That the conclusion is true.

Cautious student.—That there is no middle term.

Examiner.—As a matter of fact each answer is correct. The latter, however, is correct as a point of logic. In syllogisms like the one in question THERE IS NO MIDDLE TERM.

Students.—Is it right, then, to call such combinations as the one in question syllogisms?

Examiner.—We can scarcely deny them the name.

Neither can we. The conclusion that they give is true, and over true; it is also deduced from the

premises. What more is wanted? Hear what Professor De Morgan says.

EXTRACT.

"A is greater than B, B is greater than C, therefore A is greater than C. There is no middle term here: the predicate of the first proposition is 'a thing greater than B,' the subject of the second proposition is 'B.'

"Admitting fully that the quality of the premises—that which entitles the conclusion to be made is, as it is said, *à fortiori*—marks this argument out as, if anything, stronger, clearer (and could such a thing be), truer than a simple syllogism; yet it is plain, that the very additional circumstance on which this additional clearness depends, takes the argument out of a syllogism, as defined by all writers."—*Formal Logic*, p. 77.

(64.)

Syllogisms in which both the Premises are Particular.

It has been stated in § 60, that from two *particular* premises no conclusion can be drawn. Is this a rule for *all*, or is it a rule for only the *Aristotelian*, syllogisms?

It is *not* a rule for all syllogisms. It is only a rule for the Aristotelian.

This may be seen by the following operations on—

- A. All men are mortal ;
- A. All men are rational beings ;
- I. Some rational beings are mortal.

(*Darapti*.)

Weaken either of the two premises into—

A. All men are mortal ;

I. Some men are rational beings ;

I. Some rational beings are mortal.

(*Datissi.*)

We have seen what comes of this. The fact of the premises in *Darapti* being over-strong has already been stated. The rule, however, in question has been adhered to.

To have written,—

Some men are mortal ;

Some men are rational beings ;

Some rational beings are mortal,

would have been to have written three unconnected propositions, looking as if they formed a syllogism, but not doing so in reality.

But what if, instead of the word *some*, we had written in the premises, the words *more than half* ? In that case our sentences would have run thus :—

More than half the men in the universe are mortal ;

More than half are rational beings ;

therefore,

Some rational beings are mortal.

Is this a true conclusion ? It is. Why, then, do we deny that the proposition in which it is embodied forms a syllogism ? Because the Aristotelian rules exclude such expressions as *more than half*, limiting our quantities to the terms, *all*, *some*, and *none*.

More will be said in the sequel concerning the questions suggested by this and the two preceding questions. At present, it is considered that the

H

exposition of the rules and structure of the Aristotelian syllogism, followed by a sketchy suggestion of the chief points on which it is susceptible of modification, is enough.

65.

Two, or more, Propositions disguised as one.

§ No proposition has more than two terms, viz. one subject and one predicate. Where there is more than one of either, there is more than one proposition. Nevertheless, we may have two or more propositions conveyed by a single sentence. The commonest instances of this are the cases where, with two different subjects, we have the same predicate, or, with two different predicates, the same subject. Thus :—

1. The sun and the moon shine.
2. The sun shines and dazzles.

In each of these sentences we have, in reality, two propositions, viz. :—

1.
 - a. The sun shines.
 - b. The moon shines.

2.
 - a. The sun shines.
 - b. The sun dazzles.

This is because *sun* and *moon*, *shines* and *dazzles*, are separate and independent terms.

Had we, however, said—

1. The sun, along with the moon, shines ;
2. The sun shines so as to dazzle,

the condition of the two latter words would have

been different. They would have been subordinated to *sun* and *shine*, so as to constitute only a single proposition. This single proposition, however, would have been many-worded in respect to one of its terms.

This difference between two separate terms and one compound is shown in the grammar of the following sentences :—

1. The sun and moon shine.
2. The sun shines.
3. The moon shines.
4. The sun shines and dazzles.
5. The sun shines so as to dazzle.

Such are the examples of two propositions disguised as one.

66.

Propositions as Parts of Terms.

§ A pair of simple propositions is one thing. A single proposition consisting of a multiplicity of subordinate terms is another.

I have now to remark that terms may be so very many-worded as to embrace not only other terms, like themselves, but even whole propositions.

1. The man (is) returning.
2. Who (was) sent to market.

Combine these (omitting the words *is* and *returning*, which serve as copula and predicate), and they form but a single subject. Thus: *the man who was sent to market (is) returning*. The words *man who was sent to market* form but a single

term ; a many-worded one, doubtless, yet still but a single term.

In the opening of the *Paradise Lost*, the lines,

“ ——— The fruit
Of that forbidden tree, whose mortal taste
Brought death into the world, and all our woe,
With loss of Eden, till one greater Man
Restore us, and regain the blissful seat,”

form in the estimation of the logician but one name ; a many-worded one, no doubt ; a *very* many-worded one, but not more so than many others.

67.

Extent to which Language consists of Propositions.—Extracts.

We are like the universally famous and immortal Monsieur Jourdain of Molière, who, beginning the study of grammar and rhetoric somewhat late, and beginning it with a definition of the difference between poetry and prose, was surprised to find that he had talked prose all his lifetime without knowing it. Instead of *prose* write *proposition*, and Monsieur Jourdain's case is our own. We have uttered propositions ever since we knew how to speak, uttering them unconsciously. We have never stated either a truth or a truism without forming a proposition. We have never misstated, or heard misstated, a fact or a pretension to a fact without either delivering, or listening to, or writing, or reading a proposition. We have never asked a question that was not a proposition ; never effected a command that was not one.

Consider all this carefully, and you will have found one way of measuring the great proportion which propositions bear to the rest of our conversation.

Or you may get at the same result by considering what words do *not* enter into the structure of propositions, and by observing how few they are. They are just the words like *ah ! oh ! pish !*

They will not combine with other words so as to form sense. They will neither make a proposition by themselves nor help to make one in conjunction with other words. The person who uses them, uses them as he would use a gesture, to express surprise, pain, or contempt ; but, although he uses them thus, he makes no *affirmation*. He no more affirms that *he is surprised*, or that *he is in pain*, or that *he is scornful*, than if he started back, or laid his hand upon a tender part of his body, or curled his lip contemptuously ; and in like manner the hearer understands his meaning. But he would have understood a gesture as well. Nothing is affirmed or denied by the words. Neither do they enter into propositions wherein anything is affirmed or denied. They are wholly independent of propositions ; as much so as the hiss of a snake, or the groan of a wounded animal—expressions of which we *infer* the meaning, but expressions as to the meaning whereof we are not informed in the way that we are informed by propositions.

Save and except such words as these, there are none in the whole universe of language that exist independently of propositions.

That they are words which exist *out of, or beyond, the limits of* propositions has been shown,

but an *existence beyond the limits of a proposition* is by no means the same as an *existence independent of a proposition*. Though words like *therefore, because, if, &c.*, form no part of any one proposition at all, they connect several.

Hence, by observing that there are but two classes of words that do *not* enter into the structure of propositions, that neither class is numerous, and that the words of one of them, though belonging to no single proposition, imply the existence of *two*, we find additional proofs of the great extent to which propositions are the staple and foundation of language.

We may find them, too, by looking in another direction. Mathematicians, who rarely write upon language without supplying valuable suggestions to even the professed philologues, have, oftener than once, attempted an expression of its laws, by means of signs and symbols, algebraic in either detail or principle. The following extracts are from the *Laws of Thought* by Professor Boole. They show that by means of literal symbols we may express all terms, and by means of four signs all the relations between them. Now every one of these terms implies the existence of a proposition. With the exception, however, of the class of words like *oh ! ah ! &c.*, they represent all that is represented by language.

EXTRACT.

PROPOSITION I.

“ All the operations of language, as an instrument of reasoning, may be conducted by a system of signs composed of the following elements.

" 1st. *Literal symbols, as x y , &c., representing things as subjects of our conceptions.*

" 2nd. *Signs of operation, as $+$, $-$, \times , standing for those operations of the mind by which the conceptions of things are combined, or resolved, so as to form new conceptions involving the same elements.*

" 3rd. *The sign of identity =.*

* * * * * *

" CLASS I.

" *Appellative or Descriptive Signs, expressing either the Name of a Thing, or some quality or circumstance belonging to it.*

" Let us agree to represent the class of individuals to which a particular name, or description, is applicable by a single letter, as x .

" If the name is 'men,' for instance, let x represent 'all men,' or the class 'men.' By a class is usually meant a collection of individuals to each of which a particular name or description may be applied. Again, if an adjective, as 'good,' is employed as a term of description, let us represent by a letter, as y , all things to which the description of 'good,' is applicable, *i. e.* 'all good things,' or the class 'good things.' Let it further be agreed, that by the combination x y , shall be represented that class of things to which the names or descriptions represented by x and y are simultaneously applicable. Thus, if x alone stand for 'white things,' and y for 'sheep,' let x y stand for 'white sheep,' and, in like manner, if z stand for 'horned things,' and x and y retain their previous interpretations, let z x y represent 'horned white sheep,' *i. e.* that collection of things to which the name 'sheep,' and the descriptions 'white' and 'horned' are together applicable.

" CLASS II.

" *Signs of those Mental Operations whereby we collect Parts into a Whole, or separate a Whole into its Parts.*

" We are not only capable of entertaining the concep-

tions, as characterised by names, qualities, or circumstances, applicable to each individual of the group under consideration, but also of forming the aggregate conception of a group of objects, consisting of partial groups, each of which is separately named and described. For this purpose we use conjunctions, 'and,' 'or,' &c. In this and in all other respects, the words 'and,' 'or,' are analogous with the sign $+$ in algebra. Let x represent 'men,' y 'women;' and let $+$ stand for 'and' and 'or,' then we have—

$$x + y = y + x.$$

Let the symbol z stand for the adjective 'European;' then, since it is, in effect, the same thing to say 'European men and European women,' we may have—

$$z(x + y) = z x + z y.$$

The above are the laws which govern the use of the sign $+$, here used to denote the positive operation of aggregating parts into a whole. But the very idea of an operation effecting some positive change seems to suggest to us the idea of an opposite or negative operation, having the effect of undoing what the former one has done. Thus we cannot conceive it possible to collect parts into a whole. This operation we express in common language by the sign *except*, as, 'All men *except* Asiatics.' 'All States *except* those which are monarchical.' Here it is implied that the things excepted form a part of the things from which they are excepted. As we have expressed the operation of aggregation by the sign $+$, so we may express the negative operation above described by $-$ (*minus*). Thus if x be taken to represent men, and y Asiatics, *i.e.* Asiatic men, then the conception of 'All men except Asiatics' will be expressed by $x - y$. And if we represent by x States, and by y the descriptive property 'having a monarchical form,' then the conception of 'all States except those which are monarchical,' will be expressed by $x - x y$.

"CLASS III.

"Signs by which Relation is expressed, and by which we form Propositions.

"Though all verbs may with propriety be referred to this class, it is sufficient for the purposes of Logic to consider it as including only the substantive verb *is* and *are*, since every other verb may be resolved into this element, and one of the signs included in Class I. The above sign, *is* or *are*, may be expressed by the symbol = 'The stars are the suns and the planets.' Let us represent *stars* by x , *suns* by y , and *planets* by z : we have then—

$$x = y + z.$$

"Now, if it be true, that the stars are the suns and the planets, it will follow that the stars, except the planets, are suns. This would give the equation—

$$x - z = y.$$

Thus a term z has been removed from one side of an equation to another."—*Laws of Thought*, chap. 2.

68.

Criticism.

§ An objection has now to be anticipated. It turns upon the element *thing* in the compound word *something*, a word that has played its part somewhat conspicuously.

Let us take two birds, a crow, and a *hen* blackbird.

What are their respective characters? The crow is unequivocally black, the hen blackbird (for it is of the hen that we most especially speak) is brown, rather than black. Both are birds; the crow being a black bird so-called from its colour, the other being no black bird at all, but a brown black-

bird. Hence—we may say (as many have said) that all *black birds* are not *blackbirds* (crows are not), and all *blackbirds* are not *black birds* (a hen blackbird is not). This is a convenient and common illustration of the difference between *two* words and a compound word.

When the combination consists of two words, there is an accent on each of them, as in *bláck bírd*.

When the combination results in a compound, the accent is on only one, *i.e.* the first of them, *e.g.* *bláckbird*. Hence, we pronounce (and often write) as follows:—

All bláck bírds are not bláckbirds, and all bláckbirds are not bláck bírds.

Now the same kind of difference that exists between *bláck bírd* and *bláckbird* exists between *sóme thín*g and *sómethín*g; a difference which is of no small importance. What have we written about propositions? That they are sentences, consisting of certain members, elements, or constituents called Subject, Copula, and Predicate, and that they either assert or deny SOMETHING *concerning* SOMETHING. The *something* here spoken of is evidently a compound word, spelt as such, and accented as such—*sómethín*g, not *sóme thín*g.

The *sómethín*g, then, that is spoken of in the definition of a proposition is a word like *bláckbird* and not a word like *bláck bírd*.

We shall see the reason for this distinction if we ask what would have been the case if it had been otherwise; *i.e.* if the definition of a proposition had been that it was a sentence wherein and whereby *sóme thín*g was affirmed or denied of

some thing. What, with such a definition as this, would be the case of such a statement as

John is a hero?

Would it be right to say, that human beings like John are *things*; that heroes are *things*? Assuredly, this is not the language either of common life, or the common law, in both of which we draw a clear distinction between *persons*, on one side, and *things* on the other. A person is not a *thing*; neither is a *thing* a person. Nevertheless, the statement that *John is a hero* is a proposition. Neither is the ordinary definition inaccurate. All that is wanted to reconcile the two apparent contradictions is, a clear remembrance of the fact that *something* has a wider meaning than *some thing*. The former includes persons and things properly so called. The latter excludes persons.

Persons are not the only somethings that are opposed to things. *Immaterial* beings, essences, existences, entities, or whatever else they may be called, are in the same predicament. We can make such propositions as the following:—

Hope is a blessing.

Patience is a virtue.

Fear is unworthy of a soldier.

Conscience is a good guide.

All that remains is hope.

There is no remedy but patience.

Health is the greatest worldly good.

Here is an instance of perfect disinterestedness.

Whiteness is the essence of snow.

All these are good propositions; yet few will

call Hope, Patience, Fear, Conscience, Health, Disinterestedness, Whiteness, *things*.

Are words like *white*, &c., *somethings*? We have assuredly predicated them of certain subjects, *e.g.* *snow is white*. This speaks of snow, and says *something* about it. Is *white* then a *name of something*? There is only one way in which the word *white* is a true and universally-admitted name. It is a true and universally-admitted name, when we speak of the word as the word itself. It is a true and universally-admitted name, when we say—

White is an English word.

White is a word of five letters.

White is a word beginning with *w* and ending with *e*.

White is a word of common occurrence.

White is often used for *white thing*.

White is sometimes used for *whiteness*.

In this case it is something that strikes our senses—hearing or sight. It does the former, when it is uttered by some one with whom we speak; the latter when written, or printed, by some one whose writing, or printing, we peruse. In the former case, it is the name of a particular combination of sounds; in the latter, it is a collection of written characters, or (if we chose to express ourselves more generally) of certain points and lines endowed with the property of expressing certain sounds.

In any other sense but this, we cannot introduce such a word as *white* into the subject of a proposition, unless in combination with other words, or parts of words, with a change of power, *e.g.* :—

A *white* crow is a rare bird.

White-ness is the chief property of snow.

White is my colour.

White, then, in *strict* language, is a *thing* only so far as it is a word ; and it is, in strict language, a name of something only so far as it is the name of a word.

Nevertheless we use it as a name. This is because, though no true name itself, it suggests what is, actually, a true name, viz. *whiteness*, the name of the attribute or quality suggested by *white*.

Of this more will be said, both in Part II. and Part III.

PART II.

NAMES.

69.

Names, Individual or Common.

EVERY name is the name of something, real or imaginary.

Is the converse of this true? Has every something, real or imaginary, a name?

There are more than a million persons in London, and each of these has one.

There are more than ten thousand towns and villages in England, and each of these has one also.

There are more than fifty race-horses at Newmarket, no one of which is without its name.

Of the *persons*, then, in London, of *towns* and *villages* in England, and of the *race-horses* at Newmarket, every individual has its own individual designation: *John—Hammersmith—Eclipse, &c., &c.* And as the number of other persons, other towns and villages, and other race-horses, is great, the number of names, in England *only*, becomes enormous. There is more than a million for the Londoners only. Yet London and Newmarket are only parts of England, and England only a part of the world in general. Persons, too, and towns,

villages, and race-horses are mere fractions of the whole collection of the innumerable somethings, real or imaginary, of the universe. Have all these names?

They have *not*, that is to say, they have not names in the way that the persons of London, the towns and villages of England, and the race-horses of Newmarket have. They have not names like *Thomas*, *Hammersmith*, or *Eclipse*. Nevertheless, they have all names.

The million of *Johns*, *Thomases*, *Janes*, and *Marys*, that occupy London are all *persons*, *men*, *women*, *boys*, *girls*, *children*, as the case may be.

The ten thousand (and more) *Hammersmiths*, *Londons*, *Newmarkets*, &c., are all places, towns, villages, hamlets, &c., as the case may be.

The fifty *Eclipses*, &c., at Newmarket are all horses, mares, &c., as the case may be.

This shows that the *Johns* and *Thomases*, the *Janes* and *Marys* of London, constitute a part of an indefinite collection of individuals, each of which is a *person*, *human being*, *man*, &c., the word *person*, &c., being the name of the class constituted by this indefinite collection.

The *Hammersmiths*, &c., constitute part of an indefinite collection of individual places, towns, or villages; the word *place*, *town*, *village*, being names for the class or collection thus constituted.

The *Eclipses*, &c., of Newmarket constitute part of an indefinite collection of individual horses, the word *horse* being a name for the class to which these *Eclipses*, &c., belong; all which leads us to a great two-fold division of all names whatsoever.

Names are either *Individual* or *Common*.

An *individual* name is one which denotes a single object and no more.

A *common* name is one which denotes a whole class of objects.

Thomas is a single and particular individual of the class called *man*: *Julius Cæsar*, a single or particular individual of the class called *conquerors*. Or it may be that we look upon him rather as a *hero*. In that case he is an individual of the class of *heroes*. Whether, however, he be a *conqueror*, a *hero*, or a *man*, he is still *Julius Cæsar*; for this is what he is as an individual, irrespective of the particular class under which it may please the speaker to place him, and independent of any class at all.

The word *letter* is the name of a class; of a class to which *a*, *bee*, *cee*, and some twenty or thirty others belong. *A*, *Bee*, and *Cee* are the names of certain individual letters.

The word *London* is the name of an individual town; the word *town* the name of a class containing (along with others) *London*.

70.

Individual Names, Singular.

§ Examples of this sort may be given *ad infinitum*. The main point, however, to be remarked, remembered, and reflected on is the following:—

Common names apply to things of which there may be more than one. Individual names apply to things of which there is one and no more. There are many *towns*, but there is only one *London*;

many *men*, but only one *Thomas*; many *conquerors*, but only one *Julius Cæsar*.

Individual names, therefore, are also *singular* names, and there are many good writers who habitually call them so, preferring the term *singular* to *individual*.

The opposite to singular is *plural*—"London is a large town—London and Boston are large towns—Mæcenas was a patron of literature—Virgilius Maro was a poet, &c.—Mæcenas and Virgil were Romans."

Singulus is the Latin for *each*, and from *singulus* we get the word *single*, meaning *one*.

Plur-es is the Latin for *more*, and from *plures* we get the word *plural*, meaning *more than one*.

Father, *horse*, *stone*, &c., are singular. We use them in speaking of one object, and no more than one.

Fathers, *horses*, *stones*, &c., are plural. We use them in speaking of two or more objects.

71.

Individual Names, Proper.

§ *Individual* names are also proper names, and there are many good writers who habitually call them so—preferring the term *proper* to either *singular* or *individual*.

The reason for this lies in the fact of individual names being *appropriated*, or made *proper* to certain single individual objects to which they are exclusively attached.

72.

Common Names also called General.

§ *Common* names are also called *general*; and there is no objection to the term. It is possible, indeed, that it may be the better one of the two.

73.

Collective Names.

Common (or general) names as well as plurals, plurals as well as common (or general) names must be distinguished from a class of words to which they are allied, but from which they notably differ.

John Davies of the 62nd is an individual or proper name.

Soldier is a common, or general one.

John Davies and Henry Smith, soldiers of the 62nd, give us a plural.

The 62nd is an individual name.

Regiment, however, is a common one.

And it is something more. As opposed to *regiments*, which is plural, it is singular; and—

As opposed to John Davies, it is common;—and—

As opposed to *soldier* (which is common, or general, also), it is collective.

The following words are collective—*battalion*, *army*, *navy*, *parliament*, *multitude*, *collection*, *mob*.

Collection, itself, as may be inferred from the name, is *collective*; and so are its equivalents, *assemblage*, *group*, *class*, &c.

Collective names are the names *classes*, *groups*,

assemblages, collections of individuals dealt with as individual objects.

74.

Individual Names essentially Singular.

Individual names are essentially *singular*, and it is a common, as well as true statement, that no *individual name can be plural*. A grammarian would say that *no proper name can be plural*.

How, then, can we use such expressions as *both the Bostons are important sea-ports*, or, *as long as Mæcænases abound Maros will be plentiful*?

“*Sint Mæcænates non deerunt, Flacce, Marones.*”

Again—when it was stated that “there were many *men*, but only one *Thomas*,” was the assertion literally true? It is hoped that even the readers of this very sentence, whose name is *Thomas*, may be numerous. If so, the *dictum* under notice is inaccurate. It is inaccurate, however, only in appearance.

More men than one may bear the same name. *Thomas à Kempis* is one person; *St. Thomas*, the Apostle of India, another; *Thomas* the Rhymer a third; *Thomas Aquinas* a fourth—and so on *ad infinitum*.

Again—the *Boston* in Lincolnshire is a different town from the *Boston* in Massachusetts, so that though the same combination of sounds or letters—the same word—applies to both, it cannot be said that the same *name* is so applied. The same name is one thing. The same word applied to different objects is another. A name is only so far individual as it applies to some individual object. The

two Bostons, however, are different individuals; and so were the four Thomases, and so would be any amount of Thomases or Bostons or the like.

The case of *Mæcænas* and *Virgil* is different.

Here there are but two individuals—one *Mæcænas* and one *Virgil*. *Mæcænas*, however, is something more than the particular patron of *Virgil*. He is the sample, type, or representative of *patrons in general*. *Virgil*, in like manner, is something more than the particular poet patronised by *Mæcænas*. He stands for *poets in general*. Hence, the meaning of the Latin line, and of the English sentence that preceded it, is this:—

As long as there are men like Mæcænas, there will also be men like Virgil.

But a man like *Mæcænas* is a patron, and a man like *Virgil* a poet. Hence—

As long as there are patrons there will be poets also.

75.

Individual and Common Names. — Names of Persons and Places.

§ A little consideration, suggested by the ordinary names of common life, by the names of ourselves and friends, by the names of our dwelling-places, by the names of our domestic animals, by the names, in short, of the kind just exhibited, will tell us that, as a general rule, individual names are the names of persons, the names of animals, the names of places, personal names, or geographical names.

The illustrations of this are infinite; *e.g.*—

(1.)

Names of persons.

Individual—Adam, Eve, Julius, Cæsar, Julius Cæsar, Thomas, John, George, George the Fourth, George Barnwell, &c.

contrasted with,

Common—Man, woman, husband, wife, son, daughter, boy, girl, child, &c.

(2.)

Names of places.

Individual—Rome, Damascus, London, Troy, &c.

contrasted with,

Common—Mountain, hill, town, village, rock, promontory, &c.

(3.)

Names of animals.

Individual—Bucephalus, Eclipse, &c.

contrasted with,

Common—Horse, cow, &c.

Nevertheless, there are many others. Names like *Fortuna* the goddess of *Fortune*, and *Victoria* the goddess of *Victory*, in the Pagan mythology, are individual names. Perhaps, they may be called the names of *persons*. At any rate, they are the names of *personified* ideas.

Closely akin to these are words like *Prudence*, *Wisdom*, *Faith*, *Hope*, *Charity*. We call these, abstract names—a term concerning which much will be said hereafter. But it is clear, that they are closely allied to personifications. Indeed, in a language like the Latin, and under a mythology like that of the Romans and Greeks, they actually

come out as the names of personal beings. How slight is the difference between *Victory*, the English abstract, and *Victoria*, the Latin personification, a goddess. Upon the extent, however, to which abstract names are individual, more will be said in the sequel.

Collective names are, more or less, individual; as are the names belonging to the class considered in § 93, *i.e.* the convertible (or variable), and the inconvertible (or invariable).

76.

Individual and Common Names.—Necessity and Usefulness of Common Ones.—Extract.

Where the number of individual objects is infinite, it is clearly impossible to give a name to each. This compels us to make one name serve for many. In this compulsion, we find the origin of common terms.

Such is the view that is suggested to the reader; and such, I believe, on the whole to be, not only the true one, but the one universally admitted; provided always, that we discriminate between what is commonly called the efficient and the final causes of general names. The final cause (the word being used in its current but exceptionable sense) of general names, is their function as terms in all propositions of any value whatever. Without them, it is reasonably argued that we should be unable to state the result of a single comparison between two different objects. We should have nothing but truisms, *e.g.* *John is John*, &c. We should be well nigh as badly off as if we had no names at

all. Be it so. Nevertheless, we have no reason to believe, because the possession of them is of the highest value and the greatest importance, that it is also the cause of their having been invented. On the contrary, they may have grown up for uses never contemplated by those who first used them. Such I believe to have been the case; and, so believing, unwillingly take exceptions to the following extract from Mills' *Logic* :—

EXTRACT.

“ And here I cannot omit to notice an oversight committed by some eminent metaphysicians; who have said that the cause of our using general names is the infinite multitude of individual objects, which, making it impossible to have a name for each, compels us to make one name serve for many. This is a very limited use of the *function* ” (the italics are the present writer's) “ of general names. Even if there were a name for every individual object, we should require general names as much as we do now. Without them, we could not express the result of a single comparison, nor record one of the uniformities existing in nature; and should be hardly better off in respect to induction, than if we had no names at all. With none but names of individuals (or, in other words, proper names), we might, by pronouncing the name, suggest the idea of the object, but we could not assert a single proposition, except the unmeaning ones formed by predicating two proper names one of another. It is only by means of general names that we can convey any information or predicate any attribute, even of an individual, much more of a class.”—*System of Logic*, book iv. chap. 3, § 4.

In this extract the word *function* has had attention drawn to it by being printed in italics. This is because it is the term to which the chief exception is taken. It is not a question of a *function* that is

before us ; but a question of *origin*. How common names originated, is one matter. How, after their origin, they were applied, is another.

77.

Common, General (Generic), and Subaltern Terms.

§ It was stated in § 72 that common terms were also called *General*. The word *General*, however, is not entirely free from ambiguity.

The best illustration of this is to be found by a reference to the language of the naturalists, zoologists, and botanists.

Genus is a Latin word, signifying *kind* or *sort*. Its plural is *genera*.

Species is also a Latin word, signifying *kind* or *sort*. Its plural is the same as its singular, i.e. *species*.

Genus = a *kind* or *sort* ; *genera* = *kinds* or *sorts*. Derivatives ; *general*, *generality*, *generally*—*generic*, *generically*—*generalise*.

Species = a *kind* or *sort* ; *species* = *kinds* or *sorts*. Derivatives ; *special*, *specific*, *specify*, &c.

Both *genus* and *species* denote *classes*. We may call them, if we choose, *class* names.

Question.—Of the two classes which is the larger ? Of the two class-names which is the more comprehensive ? Does the *genus* comprehend the *species*, or the *species* the *genus* ?

Answer. The *genus* is the larger and more comprehensive. A *genus* may contain a *species*, but no *species* contains a *genus*. If this rule be neglected

in the language of common life, it is never neglected by that class of investigators who have most to do with these two terms, viz. the naturalists, be they botanists or zoologists.

Let us look at some of the classes upon which the naturalist employs himself. The objects of his science, in its widest sense, comprise men, the lower (and even the lowest) animals, trees, plants, minerals, even the fluids of the ocean and its rivers, and the gases of the atmosphere. How vast a difference between the two extremes of this wide field of inquiry! The objects, however, are capable of arrangement; an arrangement which has, by no means, been overlooked. First comes the great division between the organic and inorganic worlds; the former containing all objects that grow, and are endowed with either animal or vegetable life, the latter such as have neither life nor growth.

Say that the mineral world is inorganic; and it is clear that organisms fall into two great *kingdoms* (as they are called), the names of which we already anticipate. There is the animal kingdom, with its birds, beasts, and fishes; the vegetable, with its trees and plants, its flowers and weeds, its forests and meadows.

Each of these falls into divisions and subdivisions. How wide the difference in the vegetable world between the fern and the rose, the moss and the oak! Amongst animals, what can stand further apart from each other than our horses, oxen, and sheep, from the sponges and corals of the sea? Yet there are more sorts of sheep, horses, and oxen, than one; whilst of sponges, corals, and the like, there are vast and unnumbered classes.

Of animals that so far agree with ourselves as to have an internal skeleton, external organs of sense, and other conjoint attributes—of animals that the naturalist calls *vertebrata*, how clear and definite, to even the commonest observation, is the difference between a quadruped, a bird, a frog (or snake), and a fish ! How truly does each of these animals not only differ from the rest, but agree with a whole group of others ! Say that every bird agrees with all other birds more than with any fish, and we get a notion of the import of the word *bird* as a class-name. Different, however, as are birds and fishes, they are more alike than fishes and insects, birds and shell-fish.

Of birds, the birds of prey belong to one class ; the poultry-kind to another, &c. ; each falling into divisions and sub-divisions. There are eagles, and hawks, and vultures on one side ; turkeys, and chickens, and peafowl, &c., on the other. The same process may be applied to the objects of the vegetable kingdom. The kingdom itself comprises the oak and the moss, the sea-weed and the mould on the damp wall, the violet and the lily. But the mosses and sea-weeds, though belonging to different classes, are still included in a group which excludes the lily and the oak ; themselves belonging to different groups, and, themselves, constituting groups that fall in divisions and sub-divisions, sections and sub-sections.

Such is the sketch of the classes of the zoologist and botanist as they present themselves, if we pass from the larger to the smaller ones ; from the organic world to the vegetable kingdom, from the vegetable kingdom to the class of flowering plants,

from the class of flowering plants to the family, or tribe, of violets.

But we may reverse the process ; we may begin with the violet, and end with the organic world.

The dog-violet and the sweet violet belong to different divisions of the violet class ; a class which excludes the rose, the oak, the lily, &c.

Yet the rose, the oak, and the lily belong to a division of the vegetable kingdom that excludes the moss, the fern, and the sea-weed—plants with no flower.

All, however, are vegetables as opposed to animals.

Mutatis mutandis, we say may the same of horses, eagles, snakes, shell-fish, flies, &c.

The horse and ass belong to one class ; a class included in that of

Beasts as opposed to *birds* and *fishes*.

Yet *beasts*, *birds*, and *fishes* belong to the class of vertebrate animals, *i.e.* animals with an internal skeleton, to which shell-fish, flies, worms, microscopic animals, &c., *do not* belong.

Yet they are all animals ; the animal and vegetable kingdoms making up the organic world.

The classes under notice are like those Chinese curiosities where a large hollow ball contains a smaller one, which contains a smaller one still, which contains one still smaller, which contains, &c., &c., till we get to the smallest of all, which contains nothing ; but which is itself contained by the smallest but one. In this, there are two extremes, the largest and the smallest ; all the other sizes being intermediate.

Of these extremes we may begin with either.

To begin with the largest and end with the smallest is to *descend*.

To begin with the smallest and end with the largest is to *ascend*.

The class that comprehends all the others is the *highest*; and, as *summum* is the Latin for *highest*, a class of this kind is called *summum genus*. Our words *sum* and *summary* are derived from this *summ-um*.

The class that comprehends no other (but only so many individuals) is the *lowest*; and, as *infimum* is the Latin for lowest, a class of this kind is called *infimum genus*.

So much for the extremes. What, however, is the logical name for the intermediate classes, the classes smaller, or lower, than the *summum*, larger, or higher, than the *infimum*, *genus*? We call them by a name which a thought upon the constitution of the British army will explain. In the British army a certain class of officers are called *subalterns*. They are above the private soldier, below the commissioned officers. Think of the *subalterns* of an army, and you will remember that the intermediate genera of the logician are called *genera subalterna*.

The relations suggested by this word *subaltern* are found everywhere in the domain of thought and language. These are found wherever there is a change of import coinciding with a change of relation.

What is the word *men* in such a series of propositions as—

All men are mortal beings,

All heroes are men ;

Therefore

All heroes are mortal beings,

but the name of a class, larger than that of *heroes* and smaller than that of *mortals*? As such it is the name of a subaltern genus.

EXTRACT.

"A species, then, it is plain, when predicated of individuals, stands in the same relation to *them*, as the genus to the species; and when predicated of other (lower) species, it is, then, in respect of these, a genus, whilst it is a species in respect of a higher genus: as 'quadruped' which is a species of 'animal,' is a genus in respect of 'horse;' which latter, again, may be predicated of 'Bucephalus' and other individuals. Such a term is called a subaltern species or genus; being each, in respect of different other terms, respectively.

"A genus that is not considered a species of anything, is called *summum* (the *highest*) *genus*; a species that is not considered a genus of anything, *i.e.* is regarded as containing under it only individuals, is called *infima* (the *lowest*) *species*."—WHATELY, *book ii. supplement to chapter 1. § 4.*

78.

Individual and Common Names.—Degrees of Generality.—Generic.

§ A *genus* is said to be *general*, in proportion as it contains, or has under it, other genera. Thus, *organized being* is a more general term than *animal*, *animal* than *quadruped*, and *quadruped* than *horse*; and *vice versâ*.

Londoner is a less general term than *Englishman*, *Englishman* than *man*, *man* than *animal*, *animal* than *organized being*, &c.

Hence, there are degrees in the generality of terms; some being nearer to the *summum genus*, and (as such) more *general*, and some being nearer

to the *infima species*, and (as such) more *specific* (or *special*) than others.

More than this—the names themselves of genus and species change their application according to the changes of relation between the classes to which they apply. There is no such thing as a name exclusively applicable to a genus; no such thing as a name exclusively applicable to a species. On the contrary, the name which, on one occasion, is a genus, is, on another, a species and *vice versâ*. Talk of *heroes*, and *man* is a genus. Talk of *animals*, and *man* is a species.

Genera are at different *distances* from each other. In *all heroes are men*, *all men are animals*, *all animals are organized beings*, the class of *men* immediately includes that of *heroes*, and (so doing) is called its *nearest* (*proximum*) genus; whilst that of *animals* constitutes a *remote* (*remotum*) genus. The longer the series of subalterns between the *summum* and the *infima*, the more numerous the degrees of nearness and remoteness.

Observe—It has been stated, that some writers, instead of the word *common* use *general*, so that the opposite to an *individual* is a *general* name. When this is the case, it is convenient to denote the approach of a subaltern to a *summum* genus by the word *generic*. This is, merely, saying “that *animal* is a more generic term than *man*, *man* than *Englishman*,” &c.

79.

Individual and Common Names.—The Extremes.
—*Infima Species and Individuals.*

§ The lowest species contains a certain number

of individual objects. Say that it contains a hundred. It can, of course, be divided into so many parts. When this, however, has been done, the process of division ceases.

The *individual* is (as the term denotes) incapable of further division. The class of *men* consists of so many Johns, Peters, &c.; John, however, and Peter, consist of nothing but their own attributes.

In passing from the species to the individual we descend, and when the individual is reached we are as low as we can get.

80.

Individual and Common Names.—The Extremes.
—*Summa Genera and the Universe.*

§ From the species, we *descend*. From the summum genus, we *ascend*. Before, however, we consider the nature of our ascent, it is necessary to notice certain limitations on the word *summum*.

What term was general—what class was large—enough to comprehend the two great classes of the animal and the vegetable kingdoms, kingdoms concerning which we have spoken somewhat freely and fully? Did we not say that they were divisions of the great organic world; and was not this great organic world their *summum genus*? It was so. It was so, inasmuch as we made it so. Yet it might have been something else. It might have been nothing at all, or it might have been a mere subaltern.

Had the question been one of birds, beasts, fishes, reptiles, insects, shell-fish, &c.—had it been a

question of *animals* only—there would have been no mention of the vegetable kingdom at all; and, *vice versâ*, had it been a mere question of roses, lilies, oaks, mosses, or lichens—a question of vegetables and nought else—the animal kingdom would have lain so entirely out of the pale of our discourse as to have no existence at all; none, at least, for the purposes under notice. In other words, we might have applied to them the axiom that “things non-apparent were no better than things non-existent” (*de non apparentibus et non existentibus eadem habenda est ratio*), and have ignored them altogether. In such a case, the *summum genus* would have been the *animal* or *vegetable* kingdom, alone—as the case might have been; the *organic* world being no-where and nothing.

But what if, instead of the special details of either the zoologist or the botanist, we had had a comparison between the phenomena exhibited by plants and animals on the one side, and rocks, soils, waters, winds, &c., on the other? What if the inorganic world were compared with the organic? In such a case, a *summum genus* would, perhaps, be wanted in order to comprise the two. Could such a one be found? Certainly. There is always one *summum genus* wide enough for everything. This is the UNIVERSE. The Universe is the name of a class from which no two genera are so remote as to be excluded. Whether it may not be too wide to be of any practical use, is another question.

The UNIVERSE = EVERYTHING; and Everything is the name of a class from which nothing is excluded—nothing, whether real or imaginary;

for the Universe means, not merely the world of real objects, but the world of Thought, or conceivable existence.

81.

*The Universe—Positive and Negative Names—
Non-effective Negative Names.*

The Universe means Everything. Everything means All things. All things mean an incalculable and inconceivable number of real or imaginary Somethings.

Of these real or imaginary Somethings, let us take the largest number that the largest-minded arithmetician can conceive. Let us double, treble, or quadruple it. Let us multiply this till the figures become too numerous to deal with. Let us do all this, and more, so as to swell and magnify it, indefinitely, infinitely. And having done all this, let us reverse the process by subtracting from it the smallest fraction of a single, humble, and scarcely appreciable unit. What shall we have got by our trouble? We shall have got two things instead of one. We shall have got, instead of a single sum, a difference and a remainder, each of which has its name, no matter how small, or how large, it may be.

Let the single solitary unit thus subtracted from the unnumbered and innumerable, tangible and intangible, visible and invisible, sensible and supra-sensual, real and imaginary Somethings of our Universe, be a single grain of sand. The result is, on one side, the rest of the world *minus* the grain of

sand ; on the other, the grain of sand *minus* the rest of the world.

The difference = The grain of sand.

The remainder = Everything else.

The sum = The Universe.

But what is a grain of sand amongst so many other objects ? It is something. Small as it is, we have succeeded in separating it from the mass at large, and giving it a separate existence. Small as it is, we succeed in giving it a certain amount of attention. We have done more ; we have given it a very great deal of attention. We have put the Universe in one scale, and it in another ; and we have looked at each. Indeed, it is very possible that we may have thought quite as much upon the grain of sand *minus* everything else, as upon the Universe *minus* the grain of sand.

The name of *the* grain of sand, has been the name of an individual, *i. e.* of some single, particular grain.

Let us, however, leave out the word *the*, and say *grains of sand*, in general, or (more simply) *sand*, and we get a species.

We do not, however, get any notable addition to our difference. We get, however, the statement—the universe consists of *sand*, and objects *other than sand*, or *not-sand*.

And now, instead of *sand*, write *horse*, *man*, *glass*, *sword*, &c., &c., &c.—no matter what. *Mutatis mutandis*, the statement will remain the same. The Universe will = *horse* and *not-horse*, *man* and *not-man* ; and so on.

Can we express this in language ? Have we not already done it ? Take any word you like, and

prefix *not*-, and you have the name for one of the two classes which constitute the Universe.

You have also the division of names into NEGATIVE and POSITIVE.

A little consideration will show that, for the most part, negative names of the kind in question are of no great use; also, that when words are of no great use, they rarely find their way into language. It is, of course, possible to have, for every positive name, a negative to match. Yet no language has it. No language has anything like it. No wonder. A negative name is the name of a class; but who learns anything from a class that contains such heterogeneous elements as spirits, ghosts, elephants, pens, mountains, leaves, &c., &c., simply on the score of their being other than *sand*, other than *man*, other than *horse*, *i. e.* *not-sand*, *not-man*, *not-horse*, &c.?

The opposite to *Negative* is *Positive*. All names are either one or the other. The extent to which the latter preponderate over the former has been seen. Nor is this wonderful. In all the cases before us, and in innumerable others like them, the positive class is so very limited, and the negative so inordinately wide, that the latter contains objects upon objects that have nothing in common with one another, except the mere fact of their being different from something else—a difference (in most cases) insufficient to give the grounds of a useful classification.

Let us, then, lay aside these negatives as ineffective, and (as such) unimportant, in language, remembering only the two terms, and preparing ourselves for learning that *some* negatives (though not the

ones which we have just noticed) are actually, not only part and parcel of Language, but useful elements of it.

82.

The Universe—Its Limitations.

§ It has been suggested by the remarks of § 77 upon the extent to which such a name as Animal Kingdom might, under certain, conditions, be a summum genus, that there were *two* universes.

The remarks upon the extent to which objects which have no existence in nature may still enter into the universe of the fancy or imagination, indicate a *third*.

1. There is the Universe as it exists in nature, containing men and horses, &c. ; but not containing hippogriffs and centaurs.

2. There is a Universe of the imagination, containing all that Nature contains, and much more besides, *e. g.* hippogriffs and centaurs, as aforesaid, goblins, heathen deities, and the like.

3. There is a Universe that contains all the objects that the speaker, writer, or thinker is considering ; and nothing beyond. What more do two men in argument, what more does the solitary thinker, want than this ? What more than the ideas, objects, entities, names, or terms which belong to the subject under treatment or consideration ? These are *his* Universe ; no matter how much there may be besides for other people and for other purposes. Out of sight, out of mind. Out of mind, out of existence. *Quæ supra nos nihil ad nos*—not, at least, for the time being. *De non apparentibus et non existent-*

ibus eadem habenda est ratio. This has been said already. I repeat it in order to give prominence to the exclusion of all things beyond the pale of the immediate argument. The universe of the thinker is bounded by the horizon of his thoughts. He may extend this horizon by changing his ground. As long, however, as he is upon the same point of the same question, the horizon is his limit.

83.

The Universe—Negative Names effective when it is limited—Contraries.

The universe of the thinker is a temporary universe. He changes it for another when he changes the range of his ideas.

It is temporary and limited—a universe (as it may be called) of a Discourse, or train of reasoning. And this is what it has been called.

In a universe limited to the ideas of a given train of reasoning, negative names take a different character. They become effective.

All the men in existence are either *British citizens*, or they are not. Those who are not we call *aliens*. The first of these classes excludes the second; the second excludes the first. The two together make the class *man*. Yet *alien* is nothing more than *not-Briton*; and there are certain cases where *Briton* may be merely *non-alien*.

EXTRACT.

"*Alien* is strictly *non-Briton*; but suppose a man taken in arms against the Crown on some spot within its dominions, and claiming to be a prisoner of war. The answer that he *is* a British subject is a negation; to establish his

positive claim, he must first prove himself an alien, and moreover, that he is in another positive predicament, namely, that he is the subject of a Power at war with Great Britain. Accordingly, of two contraries, neither must be considered as *only* the negation of the other. In the matter of property, personal and real are contraries, and a definition of either is a definition of the other. But though each be a negative term as compared with the other, no one will say that the idea conveyed by either is that of a mere negation. Money is *not* land; but it is something."—DE MORGAN, *Formal Logic*, chap. 2.

The importance of the class of contraries, in Logic, will be indicated in Part III.

84.

Negative Names—Opposites—Privatives.

§ Words like *alien* and *Briton* are simply contraries. They make up by themselves the whole of the class *man*. All that is not *alien* is *Briton*; and all that is not *Briton* is *alien*. No third term comes between them. This is not the case with words like *cheap* and *dear*, *hot* and *cold*, *scarce* and *abundant*, &c., which are *opposites*.

The affirmation of one involves the denial of another.

Bread is dear = bread is not cheap.

It does this as the ordinary contraries did; but it does something more. It declares that one attribute of bread (*dearness*) is the very opposite of the other (*cheapness*).

The weather is hot = the weather is not cold.

It does this, and it does something more. It declares that the one attribute of the weather (*heat*)

is the very opposite of the other (*coldness* or *cold*).

The real words to which *cold* and *hot*, *cheap* and *dear*, are simply negative, are *temperate* and *moderate* (or *average*), as we may easily imagine by thinking of a scale of prices, or a thermometer.

Different, again, are words like *blind*, &c. *Blind* means *unable to see*. But it also means something more. *Chairs* and *tables* are unable to see. So are all objects destitute of an optic nerve—by far the larger portion of creation. Yet these are not the objects we call *blind*. The objects we call blind are those members of a class *naturally endowed with sight* which are unable to see. Such are *sightless* men and women amongst human beings, and moles amongst quadrupeds. Hence, *blind* means *unable to see when sight is expected*. A *blind* object is not merely an object without *sight*, but an object *deprived* of it; or at any rate, an object which is exceptional to the class to which it belongs.

Now the *extreme* character of words like *hot* and *cold*, &c., and the *exceptional* character of words like *blind*, &c., have the effect of giving a positive character to a negative name. And this is the case with many other words, for different reasons. *Un-pleasant* means something more than the mere negation of pleasantness; *inconvenience* is a stronger term than *not convenient*.

Words like *blind*, &c., are called *privative*—*priv-at-us* = *de-priv-ed*. They suggest the idea of something naturally possessed, but, in a particular case, lost. Now *loss* is a great deal more than mere non-possession.

(85.)

I and Not-I—Ego and Non-Ego.

§ Of the three views that can be taken of the universe, or, to speak more concisely, of the three universes, it is the third with which the logician has the most to do ; and it is with the first that he has the least. The proper student of the universe, as it exists in Nature, is the natural philosopher, whose logic is not syllogistic but inductive. The universe of the Imagination is the universe of Language. Language has names for many objects that have no real existence whatever.

The universe of discourse is generally narrower than either of the other two. But it is not so necessarily. Nothing prevents a thinker or speaker from making either nature in general, or the world of the imagination, the subject of his discourse. Nothing prevents him from taking from it, on one side, a fraction of infinitesimal smallness, and comparing that with the remainder ; in which case the relation of the difference would be that of the grain of sand of a previous section, or even less. Occasions for doing this are rare, very rare. Still they are possible. When they occur, the universe of the discourse coincides with those of either nature or the imagination. It is, still, however, the universe of our discourse, its increase of magnitude being an accident.

I say that it is not often that these coincidences occur ; neither does it always happen that, when they *do* occur, they act upon language. There is nothing, perhaps, that more disposes the mind to

effect a separation of this kind than the contemplation of the stars, attended by a knowledge of their magnitude and distance, and the feeling, thereby engendered, of the insignificance of him who views them. The sense of self—of self in its smallness—comes upon him. How vast the universe! How small man! How insignificant, amongst men, I!

In thoughts of this kind the separation of the universe into two parts, of utterly disproportionate magnitudes, is made. On one side is a single individual of a single species; on the other, countless collections. Yet no inclination arises on the part of the maker of this division to create a name for the two classes, though he might do so by merely joining the words *not* and *I*; by *I* denoting himself, by *not-I*, everything else.

He might do this, though he does not. He might do it as far as language is concerned, inasmuch as *not-I* is as good a word as *not-horse*, or *not-man*, &c. Yet he does not do it; and the reason why he does not is, because the feeling of separation that throws his thoughts upon himself is accompanied by a feeling of weakness, littleness, insignificance, nullity. What is he, that he should weigh himself against everything else, and be one in a dualism? Egotist as his contemplations have made him, they have made him a humble one.

Yet the words *I* and *not-I* (or at least their Latin equivalents, *Ego* * and *Non-ego*,) have an existence in language, and this existence is due to a division of the kind under notice—a single thinker on one side, the external world on the other. I have

* Also the German *Ich* and *Nicht-Ich*.

before me, at the present moment, a work in which Ego and Non-ego occur upwards of twenty times in a single page,* and they do not do this for nothing.

It is well known that more than one profound metaphysician has taken exceptions to the general belief in the existence of an external material world, arguing that the only things concerning which the mind of a sentient being can be sure, are its own states of consciousness. Whether there are corresponding objects beyond the mind of the thinker is doubtful.

The only certain fact in the eyes of an idealist philosopher of this kind is his own mental existence. Of this he is sure; of everything else doubtful. In such a frame of mind the difference between himself and everything else is not only real, but in favour of the thinker. The *I* (or if he find the Latin expression more convenient), the *ego*, is the one fundamental truth; the *not-I* (or *non-ego*) has a far inferior degree of certainty.

Of the following extracts, the former refers to the idealism of Berkely, the latter to that of Fichte.

EXTRACTS.

I.

"A profound and judicious thinker, animated by a spirit of genuine benevolence, and venerable for his personal character, was shocked by the evil consequences which the prevailing theory of experimentalism had produced. He was led to imagine that the fruitful source of all such aberrations was the unfounded belief in the reality and existence of the world, and adopted a system of

* TENNEMAN'S *Manual of the History of Philosophy* (English Translation), p. 249.

absolute *idealism* as the only means of correcting such hallucinations. Berkely has evinced no little sagacity in the arguments he adduces to show the difficulties attendant on the ordinary belief, and the obscurity of our ideas of substance, accident, and extension; maintaining that our senses convey to us none but sensible impressions, and do not afford us any proof of the existence or substantiality of their objects, and that consequently the existence of an external world, independent of our sensations, may be nothing more than a chimæra." — TENNEMAN'S *Manual of the History of Philosophy* (English Translation), p. 344.

II.

"First principle, $A = A X$, represents the systematic dependency of the whole. A and X being supposed to exist in *ego*, may be signified by this formulary, *ego sum ego*. This is the self-evident principle of moral philosophy and knowledge in general, expressing the necessary form and substance of consciousness. In virtue of this principle we form judgments; to judge being an act and operation of *ego*. *Ego* then establishes, absolutely and independently, its own existence, being at once the agent and the result of the action, in which combination consists the essence of consciousness. The first operation of *ego* is that of reflection on itself, which is occasioned by an impediment to its hitherto unrestrained energies. *Ego* places itself in the position of the subject, inasmuch as it opposes itself as subject to the obstacle contemplated. The *second* principle (involved in the former) is this—that *ego* is not *non-ego*. There remains yet a *third* principle, conditional as far as relates to its form, but not as respects its value. To exemplify this, an action of *ego* is required, which may illustrate the opposition of *ego* and *non-ego* in *ego* without destroying *ego*."—*Ibid.* pp. 427, 428.

86.

Substance and Attribute.—Abstract and Concrete.

We now come to four new terms, that mutually illustrate each other. They run in pairs, (1 and 2) *Substance* and *Attribute*, (3 and 4) *Abstract* and *Concrete*. They do not take us away from the consideration of the important divisions that we have just been considering altogether, though they do so for a while.

Substance is from *sub* (=under) and *stans*, *stant-is* (=standing). It is the same word, in respect to its etymology, as *hypostasis*, which is from *hypo*=(under), and *stasis* (=standing). The difference between the two words consists in the former being of Latin, the latter of Greek, origin.

Attribute is from *ad* (=to) and *tributum* (=a thing paid); an *attribute* being that which we ascribe, give to, lay to the account of, or connect with anything. To pay a man the compliment of being honest is to attribute honesty to him.

Concrete—*Con*, is the Latin word *cum* (=with); *cretum* is the participle of *cerno*. *Cerno*, in the Latin, is, usually, translated *see*, or *perceive*. It is, however, the same as the Greek word *crino* (κρίνω) = *I judge*; so that the truer and fuller import of the word is to denote *observation with judgment*. Where we not only *see* an object, but *see* it in such a manner as to take cognizance of either the differences between its constituent parts, or the difference between the object itself and others, we get the compounds *dis-cern*, and *dis-crete* (*dis*=*difference*=*separation*). Where we not only *see*, but take

cognizance of points of *likeness* rather than difference, we use *con* (= *with* = *union* = *unity*), and get words like *con-cern* and *con-crete*. Wherever we have anything *concrete*, we have an union or conjunction of qualities or properties.

Abstract is the opposite to concrete both in meaning and in derivation. *Abs* = *from*, whilst *tractum* = *drawn*. Hence, *abstract* = *that which is drawn off*, and this is as different from concrete as *subtraction* is from addition.

87.

Substance and Attribute.

§ Take (for instance) an orange. It strikes our senses.

We see with our *eyes* that it is more or less *round*, *i.e.* that it is endowed with the *property or quality of roundness*.

We see, too, that it is more or less *yellow*, *i.e.* that it is endowed with the *property or quality of yellowness*.

We see that it is more or less *smooth*, *i.e.* endowed with the *property or quality of smoothness*.

Our eyes tell us all this, the eyes being the sense by which our belief as to the properties in question is conveyed to us. They tell a great deal more, but this it is unnecessary to enlarge on.

Then comes the evidence of our other senses.

By our *ears*, we detect a sound if we rub the skin with our fingers. We also do so if we squeeze it so as to let the juice flow from one compartment to another.

We *smell* it and find a peculiar and not unpleasant aroma.

We *taste* and are gratified by a not unpleasant flavour.

We *feel* that it is elastic, or endowed with the property of elasticity. We feel, too (even as we saw), that it has a certain figure and size. We feel, too, that it has a certain weight.

On the strength of all this we say (and we might say much more) that

An orange is *round, yellow, smooth, capable (under certain conditions) of exciting sounds, fragrant, sapid, elastic, &c.*

When we say that an orange is this, we *attribute* to it certain properties, or qualities.

What are they? The qualities, or properties, of *roundness, yellowness, smoothness, sonorousness, fragranciness, sapidity.*

And how do we speak when we say that we do so? It is convenient to begin with saying how we do *not* speak.

We do *not* say that an orange has the property of *round, yellow, smooth, &c.* On the contrary, we say that it has the property of *round-ness, yellow-ness, smooth-ness, &c.* To say

An orange is round,

An orange has the property of roundness,

An orange has roundness,

is accurate. To say

An orange has round,

An orange is the property of roundness,

An orange is roundness,

is exceptionable.

So much for the attributes of an *orange*; at

least for some of them. The attributes of a *guinea*, a *loaf*, a *man*, a *fish*, or anything else may be considered in the same way. They are, of course, when taken altogether, different from those of an orange. The principle, however, of considering them is the same.

Let us now suppose that all these attributes are, one by one, taken away, *and replaced by others*; that instead of an orange striking our eyes and sense of touch as round, it strikes them as square, or rhomboid; that it loses its fragrance and becomes fetid; that it sounds like a bell, and tastes like a loaf of bread. Would the object still be an orange? Would it not be something else? This leads to the question of the *essential* attributes, or *essences* of things. Never mind them for the present; but put your thoughts in a somewhat different direction.

Divest the orange of all its attributes *without supplying it with new ones*. What will it be then? Take away its original colour without replacing it by any fresh one. Let it lose its softness without becoming hard, its roundness without becoming of any other form. Annihilate its weight, taste, and smell. Let it have no means of appealing to eye, ear, taste, smell, or touch, so that it become, at one and the same time, impalpable, invisible, imperceptible. What will it be then? Will it be anything at all?

What becomes of the attributes? We have seen that they were taken away. What was done with them? They were taken away *separately*, and it is separately that they are put aside. *Roundness* and *yellowness* no longer go together. Each is in

its own place ; and that is a place by itself. No link now unites them ; the orange in which they met being no more.

But we may unite them afresh—say in the idea of a golden ball, a guinea, a full moon, &c.

And we may, also, separate them, again and again.

United, they give the idea of an object clear, palpable, sensible. Separated, or abstracted from those objects, they do nothing of the kind.

Yet the mind takes cognizance of them. The idea of the particular attribute of yellowness, abstracted from an orange, is not much more difficult than the idea of the orange *minus* the attribute of yellowness. It is merely a case of difference and remainder ; the additions and subtractions being made unconsciously and instinctively.

What becomes of the orange ? Is it annihilated by the abstraction of its attributes, one and all ? Few are prepared to say *yes* to this question. Few divest themselves of the notion that sensible, and material, objects are nothing more than the combination of certain properties, qualities, and attributes, each and all of which may be removed in such a way as to leave an absolute nothing. We rather imagine that, where there are certain attributes in union, there is a certain link which connects them ; a basis, or foundation, which supports them ; a basis or foundation different from the attributes themselves,—something, which they are not, but upon which they rest.

This *something* supports them. This something stands *under* them. This something is the *sub-stance*, or *under-standing*, of objects, as opposed to, and contrasted with, their *attributes*.

88.

*Concrete Names the Names of Substances.—
Abstract, the Names of Attributes.*

Concrete terms are the names of Substances.
Abstract terms are the names of Attributes ;

e.g.—

| ABSTRACT. | | CONCRETE. |
|----------------------------|--|----------------|
| <i>Brightness,</i> | Attributes of the Sub- stances | <i>Sun.</i> |
| <i>Heat,</i> | | <i>Fire.</i> |
| <i>Light, &c.</i> | | <i>Spark.</i> |
| <i>Mortality,</i> | Attributes of the Sub- stances | <i>Animal.</i> |
| <i>Vitality,</i> | | <i>Man.</i> |
| <i>Animality,</i> | | <i>Horse.</i> |
| <i>Solidity,</i> | Attributes of the Substances | <i>Wood.</i> |
| <i>Resistance, &c.</i> | | <i>Stone.</i> |
| <i>Fluidity, &c.</i> | Attributes of the Substance— <i>Water.</i> | |

Vice versâ.

| CONCRETE. | | ABSTRACT. |
|-----------------------|-------------------------------------|--------------------|
| <i>The Sun,</i> | Substances with the At- tributes | <i>Brightness.</i> |
| <i>Moon,</i> | | <i>Heat.</i> |
| <i>Stars, &c.</i> | | <i>Warmth.</i> |
| <i>Man,</i> | Substances with the Attributes | <i>Mortality.</i> |
| <i>Horse, &c.</i> | | <i>Vitality.</i> |
| | | <i>Animality.</i> |

It is, perhaps, unnecessary to say that *substance* as used by logicians, has by no means the sense which so often attaches to it in common conversation, viz. that of *matter* or *body*. On the contrary, it means anything that can be looked upon as the basis of an attribute. A *ghost* is a sub-

K

stance of which the most important attribute is its *immateriality* or *incorporeity*.

On the other hand, it is an undoubted fact, and one of which the explanation readily suggests itself, that the abstraction of attributes is easy in proportion as the concrete substance is a sensible object, *i.e.* an object capable of being seen, heard, tasted, smelt, or felt. Terms like *roundness*, *roughness*, *smoothness*, *yellowness*, *sweetness*, &c., are much more readily suggested by *balls*, *guineas*, *sugar*, &c., than terms like *virtue*, *vice*, *goodness*, *badness*, &c., by *deeds* and *characters* which have to be got at by means of the observation and comparison of numerous different actions, performed at different times, by different agents. Of these, the substance itself is more or less of an abstraction.

89.

Abstract Names of different Degrees of Generality.

§ Some abstract names are more general than others; *e.g.*—

| | | |
|----------------------------|---|---|
| <i>Whiteness,</i> | } | are species of the genus . <i>Colour.</i> |
| <i>Redness,</i> | | |
| <i>Yellowness, &c.</i> | | |

| | | |
|----------------------------|---|--|
| <i>Bigness,</i> | } | species of the genus . . . <i>Size</i> |
| <i>Littleness, &c.</i> | | |

Lightness, &c., species of the genus . . . *Weight.*

Each of the cardinal virtues, prudence, charity, &c., is a species of the genus virtue.

90.

Abstract Names, how far Individual.

§ Each of the cardinal virtues is a species of the genus virtue.

If so, their names are common, rather than individual terms. At any rate virtue is a common name; and, not only that, but a common term of some generality, since it comprises prudence and charity, just as colour comprises redness and whiteness.

But what if these special virtues be personified, as they were in the creeds of antiquity, and as they are in the imagination of artists? They, then, become individuals. So does Virtue itself—general (or generic) though it (or she) be. Or, what if we look upon the group with the eyes with which we view the soldiers of a regiment—the soldiers being so many individuals, the regiment being the *collection* which they constitute?

Whichever view we take, we ought to be led to a question of some interest, viz. the extent to which abstract names are common or individual.

EXTRACT.

“Do abstract names belong to the class of general or to that of singular names? Some of them are certainly general. I mean those which are names not of one single and definite attribute, but of a class of attributes. Such is the word *colour*, which is a name common to whiteness, redness, &c. Such is even the word whiteness itself, in respect of the different shades of whiteness to which it is applied in common; the word magnitude, in respect of the various degrees of magnitude and the various dimensions of space; the word weight, in respect of the various degrees

of weight. Such also is the word *attribute* itself, the common name of all particular attributes. But when only one attribute, neither variable in degree nor in kind, is designated by the name; as visibleness; tangibleness; equality; squareness; milkwhiteness; then the name can hardly be considered general; for though it denotes an attribute of many different objects, the attribute itself is always conceived as one, not many.—MILL's *Logic*, b. i. c. 2, § 4.

In this extract singular means individual, and general means, common. The view embodied in it is by no means unexceptionable. *Colour* is, doubtless, a more general name than *redness*, if by general we mean belonging to a higher genus (generic). See § 89.

The fact is, that colour is more general than redness, just as army is more general than regiment, both words being collective, and both, as such, more or less, individual.

Without being individual to the extent that such names as *John*, *Julius Cæsar*, and the so-called proper names, are individual, abstract names, whether general or specific, are, at least, on the confines of Individuality.

91.

*Attribute—why a better Term than Quality—
Attribute of a Quantity.*

§ This is the place for a question concerning the word *Attribute* and its relation to the word *Quality*.

The former is a somewhat rare word; a word that may almost be called technical. The latter is current, common, and intelligible. It is the word, too, which when we spoke of the *whiteness of snow*, &c., we used pretty freely. At any rate, we called *whiteness* a *quality* of snow quite as often as we

called it an *attribute*. Why, then, not have done so always? Why use two terms when one would have sufficed? Why take up such a word as *attribute* at all, when *quality* would have served instead?

Again, why not say *property* instead of even *quality*? It is, perhaps, the commoner word. At any rate, it is equally intelligible. It is a word, too, of which the cognate derivative *proper* has already been in use. We spoke of *proper* names; why not of the *properties* of individuals or classes? *Whiteness* is a property of snow. It *belongs* to snow. It is something that snow, if it could speak, might call its *own*.

Quality is derived from *qualis*; which is a word somewhat difficult to translate. It answers, nearly, to our word *such*; and more still to our word *such-like*. A Roman, however, would not translate either *such* or *such-like* by *qualis*. The Latin for *such* or *such-like* is *talis*; a word evidently in a certain relation to *qualis*, as we infer from the similarity of form.

The nearest English translation of the word *qualis* is the somewhat awkward compound, *what-like*.

“*Question*. What, and *what-like*, were his reasons for acting as he did?

“*Answer*. Oh! they were *such* and *such-like*. He gave a long list of them.”

A *quality*, then, is the *what-like-ness* of an object.

White-ness is a quality of snow, because, by possessing that property, snow is like some other white object—*which* it is *like* or *which-like* it is.

Wherever there is a *quality* there is *likeness*.

Of the same origin with *qu-al-ity* are the words *qu-idd-ity*, and *qu-ant-ity*. They are each derivatives from the root *qu-*, so that as far as the first two letters go, the three words agree—*qu-ality*, *qu-iddity*, *qu-antity*. The three last letters agree as well. All three end in *-ity*; all three being derived from the Latin words in *-tas* (*tat-is*), viz. *qu-ali-tas*, *qu-idd-itas*, and *qu-ant-itas*—*-tas* (or *-tat*) being, in Latin, the sign of abstraction.

Concerning *quiddity* there is little, or nothing, to be said. It is obsolete. Nor need much, at present, be said about *quantity*. The only object of the present section is to give a reason for the use of the word *Attribute*, when, apparently, *Quality* would do as well. This lies in the fact of *all qualities being attributes though all attributes are not qualities*.

In other words, quality is a species of the genus attribute; attribute being, of course, the wider and more general term.

Another species of the same genus, another term subordinate to attribute, is *quantity*; the *quantity* of any substance being as much one of its attributes as its colour, taste, or any ordinary *quality*.

This distinction is neither more nor less than a distinction of the common language of conversation. The fact of a couple of men being *two* (their *two-ness*, so to say), though allied to the fact of their being *mortal* (or their *mortality*), belongs to a different class of phenomena. The one is a matter of *quantity*, the other of *quality*. Both, however, are *attributes*.

It is, then, the greater generality of the word

Attribute which brings it into use. It includes quantities as well as qualities.

The *logical* difference between Quality and Property, a difference not made in common language, need not, here, be explained.

92.

Attribute of Relation.

There are, then, two kinds of Attributes, viz. Qualities and Quantities.

Are there any others? There is, certainly, one more; and that, in the history of language, a most important one, one to which Quantity itself is subordinate, the attribute of Relation.

The ordinary qualities of objects are more or less permanent and inherent to their several substances. If an object be *white*, it cannot become *black* or *red* without an absolute change in its nature or characteristics. It may not, indeed, always (or even generally) be converted into something else, inasmuch as the change may not go far enough to affect what are called its essential qualities. Nevertheless, the change may be considerable, and it may be of a permanent kind. It is, certainly, *internal*; i. e. it applies to something contained within the range of attributes that belong to the substance in which they occur.

But what are we to say to changes that, leaving all the ordinary qualities of an object exactly as they were, still are changes?

What are we to say to changes that, in some sense, are no changes at all? Do we not, in the first place, ask whether they actually exist? Can

one man be converted into another at all? Can he be so converted without any alteration whatever of any one of his qualities? He can. A man may, for the purposes of language, take the name of another man, of a horse, of an inanimate object, or of anything else *in rerum naturá*; and that truly, and without losing any one of his original qualities, or gaining any fresh ones.

He may do this by a change of relation. We saw our way to something in this way in the section upon genera. The subaltern classes were greater or smaller according to the point from which they were viewed. They were this without any change whatever in the way of actual magnitude.

Words like *father* and *son*, *master* and *servant*, *ruler* and *subject*, are of the same kind. The *father* of John may be the *son* of Thomas. Yet *father* and *son* are, essentially, different (not to say opposite) names.

It is the point of view from which we contemplate the relation between such objects, or ideas, as these that determines the application of the names. Different as they are, they may yet apply to the same object. More than this, they may be changed and shifted from one object to another. The *father* of one moment may be the *son* of another, and *vice versá*.

A *stone* in a certain relation to the speaker (*i. e.* in his hand) is named *this*. The same stone, when thrown to a distance, is named *that*.

Again—the word *this*, immediately after doing duty as the name of a *stone*, may stand for a *father*, a *son*, a *pen*, &c., &c.

Nevertheless, the *stones, fathers, sons, pens, &c.*, that are named *this* (or *these*) are, in all matters of ordinary quality, the same as the *fathers, sons, pens, &c.*, named *that* (or *those*) ; the change of attribute that justifies the change of name being simply that of relation to either the speaker or some other object.

It may be said that words like *this* and *that* are not *names*. That they are not permanent, unchangeable, and irremovable names is true. But why should permanence, &c., be considered essential to the idea of a name? The words in question are *terms*, and they denote *objects*. It would be difficult to show that more than this is necessary to constitute a name.

The fact is that words of the sort in question are not only names, but names of a very important kind.

93.

Convertible Names.

The difference between individual and common terms has long commanded the attention of both logicians and grammarians.

Not so, however, the difference between the two classes of names which form the subject of the present section—the difference between the Inconvertible and Convertible. In the Natural History of Language, no distinction is more important than this. Neither is it useless, but (on the contrary) very useful in ordinary grammar.

In order to understand it, a clear notion of the

attribute of relation, as opposed to that of quality, is all-important.

Compare the word *I* with the word *writer*. The latter is a name which can be applied to a certain class of objects only. A *writer*, for instance, must be a *person*. Probably, he will be a person of a certain age, or one who has arrived at years of discretion; he will also be more or less civilised. Finally, he will *write*. A child is no *writer*, a *savage* no *writer*; consequently, to neither children nor savages does the word *writer* apply. To apply it to a person who neither will nor can write, who neither has written nor is about to write, is to *misapply* it. It is a word that can only refer to a certain class of objects; and, as such, is *invariable*.

But what is the case with *I*? A child may say *I am not a man*, and a *man* may say, *I am not a child*; and yet the word *I* retain its proper power. When *William* says *I*, it means *William*; when *Thomas* says *I*, it means *Thomas*. If a *mother* says *I*, it means a *mother* and a *female*; if a *father* says *I*, it means a *father* and a *male*. Even if an inanimate object be personified and be supposed to speak about itself and to say *I*, it means that inanimate object. It denotes the speaker, whoever it may be.

The same applies to *you*; which denotes the person spoken to, whoever he may be. If *I* speak to *you* and *you* are named *William*, *you* means *William*; but if *your* name be *Thomas*, then *Thomas* is what is meant by *you*. Any object that is capable of being spoken to is capable of being called *you*; even as any object capable of speaking

may be *I*. The generality of objects that are named *I* and *you* are, of course, persons, men, women, or children. But they need not necessarily be so. Animals, as we find in fables, may be supposed to speak. So may inanimate objects. They do not do so in nature. They do so, however, and that not unfrequently, in the imagination of the men and women who use and make language; and that is enough.

The word *he* may denote any male person concerning whom any one else chooses to speak. It may even denote a female. Suppose that I am speaking of a person seen at a great distance, a person that is actually a woman, but whom I imagine to be a man, I may say, *he is now in sight*; or I may say the same of a person in woman's clothes. Julius Cæsar, William the Conqueror, Julius Cæsar's dog, William the Conqueror's horse, are all equally *he*; but they, by no means, are all equally *men, dogs, or horses*. Julius Cæsar and William the Conqueror only are men. Their domestic animals were horses or dogs, as the case might be.

She may denote any female, real or supposed, just as *he* might denote any male—Queen Elizabeth, Cleopatra, Queen Elizabeth's mare, &c., &c.

It denotes inanimate, just as *he* and *she* denote animate, objects. There is nothing in the universe that may not be called *it*.

This and *that* have been noticed already.

It is obvious, then, that words like *I, you, he, this, that, &c.*, are what may be called convertible, whilst words like *writer, man, woman, child, stone, &c.*, are inconvertible. The former can be applied to any (or, at any rate, to several) objects, no matter

how dissimilar. The latter applies to one class of objects, and no more.

Instead of saying convertible and inconvertible, we may say variable and invariable.

All convertible names are individual. This is transparently visible with words like *I, thou, this, &c.*; nor is it difficult to see that the same must be the case with *we, ye, these, &c.* Plural as these words are in form, they are, really, collectives.

94.

Notation (or De-notation) and Con-notation—Individual Names not Connotative.

Convertible names simply *note* or *denote* the objects to which they apply.

To simply *note*, or *denote*, an object is to point it out, to mark it out, to set a mark on it, by which it shall be distinguished from all other objects; this distinguishing mark being its name. For names are nothing more than certain marks. The Latin for a *mark* is *nota*; the Latin for *I mark* being *noto*; the Latin for *marking* being *notatio*.

A mark in its narrowest application has very little meaning—properly speaking, writes Mill, it has not any. It has only a purpose. He proceeds to explain this distinction. The robber in the story of the Forty Thieves marks the house in which Haji Baba lives. Why? In order that he may distinguish it from the others in the same street. He marks it with chalk, and what does the chalk-mark do? It says, “this is the particular house that I

wish to know again." It says this, and nothing more. The house itself, however, was a great deal more than this. It was the house of a wealthy owner. It was the house in which much gold lay. It was a cottage, a mansion, a messuage, a first-class residence, a tenement, &c., as the case might be. But the chalk-mark told us nothing of this. It merely told us what it was *not*. Hence, when Morgiana marked all the other houses in the same manner, she defeated the scheme; not (be it observed) by rubbing off the chalk on Haji Baba's door, but by annihilating its value as a distinctive mark, by placing the rest of the street in the same predicament.

If Haji Baba had lived in London, instead of Bagdad, no chalk would have been needed. There would have been the number on the door—say No. 2. And this would have been the mark of the house; the mark by which it was distinguished from Nos. 3, 4, 5, &c.; all, perhaps, alike in external appearance. That this would have been sufficient for the purposes of the robber is clear; provided only he could read the number and remember it as No. 2.

The chalk-mark and *No. 2* then are the names of the houses in question.

Let them be used as such in a conversation with some second person. What purpose will they serve? It is certain that, whatever else they may supply, they will not supply a *description* of any kind. They will not tell anything positive at all. They may be used in conversation, but if the person addressed have no key to their meaning they will be all but meaningless. They will merely

signify something different from No. 1, No. 3, &c., and something different from all things whereon no chalk-mark is to be seen.

But substitute *house* for No. 2, &c., and you will find that you are using a word of a different kind altogether, a word that not only *de*-notes something, but which *con*-notes something as well. A house, *as such*, has certain attributes. It serves certain purposes. It contains certain apartments. It is bounded by walls, covered by a roof. All this is the case with No. 1, or the *object marked with chalk*—when we know it to be a house, but not before. Until we have learned that it means a house, we only know that it is *not* something destitute of a chalkmark, or that it is something either not numbered at all, or numbered differently. In other words, whilst *house* implies the existence of certain attributes, No. 2, or the *object marked with chalk*, implies nothing of the kind, except so far as the number or mark itself is one.

To pass to another illustration.

At first sight it seems much more definite, in speaking of pictures, to say a *Flora by Rubens*, than a *painting by an artist*; inasmuch as the former expression tells us, not only that it is a painting of which we speak, but that the subject of it is a heathen goddess, and the artist the great Flemish master. And so it is—under one proviso, but not otherwise. This proviso is, that we must know, from other sources, that it is Art and artists that we are speaking about. It is only with this knowledge that words like *Flora* and *Rubens* have any practical meaning at all. So little do they, of themselves, tell us anything,

that, unless there be a context to explain them, Flora may mean a blood mare and Rubens her sire ; as has actually been the case. It is a current story in one of the sporting counties, that an artist having called to see a famous Flora by Rubens, was shown into the stable ; the owner of which might, perhaps, have been equally surprised if an artist, who had heard of his fondness for such things, had shown him into a picture-gallery.

This illustrates the extent to which individual names, *unless explained by a context*, are useless for the purpose of supplying information concerning the nature of the objects to which they apply. They only give us what we may awkwardly denominate their *so-called-ness*—*i.e.* the fact of their bearing a given name. Flora differs from Rubens and Rubens from Flora in having different names—the name in each, as long as it is the only fact known concerning them, being their one solitary property, or characteristic. This, single and solitary as it is, is still sufficient for one important purpose, that of denoting them, or marking them as separate from everything else. The name Flora, for instance, separates even the unknown object that bears it not only from Rubens, but from all other objects not named Flora.

Individual names, of the kind in question, then, require a context to explain them ; *i.e.* to tell us the class of objects to which they apply. Unless they are thus accompanied, they are in the condition of the words of a foreign language. This is pre-eminently the case with the so-called proper names.

It is also the case with words like *I*, *this*, *that*, &c., or the whole class of convertibles. No one knows what *this* or *that* means from the bare use of

the words themselves. Every one knows what they mean when the object to which they apply is either pointed out, or indicated by the rest of the conversation.

This, too, is the case with the class of abstracts ; although their application as individual terms is peculiar. Abstract names are essentially the names of intellectual, and internal, rather than of material and external, objects. They are, pre-eminently, the names of ideas. Now *yellowness* is as much an individual idea as the painter Rubens is an individual human being. It is, also, equally a substance, *i.e.* equally the basis of an attribute. It is a name that we can apply to many objects ; but so we can the words, *I, thou, Flora, &c.*, which are, nevertheless, the names of individuals rather than of classes. Like *I, Rubens, No. 2*, or the chalk-mark of our first illustration, it serves only for the purposes of separation ; dividing *yellow* from *not-yellow*. This it does, and it does no more. It *connotes* nothing. It simply notes or denotes.

The reason why individual names are thus non-connotative lies in the fact, already suggested, of their conveying nothing beyond the mere *so-called-ness*, or *named-ness* of their objects. Whether this be an attribute will be considered in the sequel.

In *I, this, &c.*, the attribute is that of the particular relation, for the time being, of the object to which the words apply to some other object, to the speaker, or to both.

In abstracts, the individual character of the name *yellowness* lies in the singleness of the idea which it expresses ; the idea being based upon the peculiar character of certain sensations created by yellow objects in general.

There is nothing, however, that is so necessarily connected with *yellowness* as to make the word suggest anything like a class. The objects connected by the fact of their all being *yellow* are of the same heterogeneous character as the objects connected by certain negative names, *e. g. non-horse*, &c. (see §§ 81—85). Indeed, abstract and negative names have much in common. The former give but one attribute; the latter something even less than this; *viz.*, the bare fact of the objects to which they apply not being something else.

All individual names are notative, *de*-notative, or *non*-connotative.

95.

Notation, &c.—Common Names connotative.—Characteristics, or essential Attributes.

§ All Common names are Connotative.

They all apply to classes of objects.

Classes of objects consist of certain individuals endowed with certain attributes; and these attributes, in order for the objects to which they belong to form a class, must be *numerous*. They must, at any rate, be *more than one*.

It is by having a certain number of attributes alike, that objects belong to the same class. It is by having a certain number unlike that they belong to different divisions of it.

It is evident that all the attributes of an object are not of equal importance. Whilst some cannot be changed without changing its character, some can be withdrawn and replaced by others, the character of the substance to which they appertain

remaining unaltered. In other words, some attributes are characteristic, others not ; some *essential*, or necessary to make the object what it is (*esse* = *to be*), others unessential or indifferent.

The *ink* with which these lines were written, was black and fluid. The *ink* with which they were printed was black, but scarcely fluid. The *ink* with which they were written, however, might have been red or blue. Nay, there is such a thing as purple *ink*. The Imperial signatures of the Byzantine Cæsars were made in it. Indian *ink* is a solid, capable, however, of being made fluid. Then there are several sorts of invisible *ink* ; capable, however, of being made visible.

There is no ink, however, which cannot be used for *writing, limning, shading, marking*, or some similar application to which its fluidity and colour are subservient ; and it is probably safe to say, that the essential character is its use for the above-named purposes. Fluidity and colour of some kind are also of great importance. The particular degree, however, of fluidity and the particular tint are matters of indifference. They may be changed without making the *ink* into *not-ink*.

The same applies to every object in either Nature or Art, to which a common, or class, name can be attached, except in the cases of absolute identity.

In order for objects of the same class to differ from each other, they must exhibit their difference in some unessential attributes. To differ in an essential one is to belong to a different class. This implies that there must not only be, at least, two attributes to the object, but that there must be two sorts of them—essential and unessential.

96.

*Difference of view respecting the characteristics of
Classes.*

§ It is not every one that takes the same view of the essentiality of an attribute. In the eyes of a grazier, clover is a *grass*; so, at least, he would call it if he were speaking of the difference between the natural and artificial grasses. Wheat, on the other hand, and oats, and barley, are no grasses in his eyes, but so many kinds of corn. Still less is the sugar-cane a grass. Yet this is what they are in the eyes of the botanist; who withholds the term from clover.

Whence the difference?

The grazier considers one set of attributes essential, the botanist another.

In the eyes of the same farmer the bulb of an onion is a *root*, inasmuch as it has, in his eyes, the essential attributes of one. It lies, more or less, below the surface of the soil. It appears to feed the leaves, flowers, and seeds. It comports itself, in short, except in certain apparently unessential points, like the root of ordinary plants.

In the eyes of the botanist, however, it may do all this and much more, and yet be no root. It grows upwards like a stem, instead of downwards like a true root. The true root is the bunch of fibres that grow at the bottom of it. The bulb itself is an underground bud. All this difference of view arises out of the fact of the ordinary observer making one set of attributes essential, the botanist another.

97.

Relation between Names and Classes.—The Class growing out of the Name.

§ The manner in which common names come into existence belongs to the Natural History of Language rather than Logic. It is convenient, however, to notice the relation between the employment of them and Classification.

As soon as two or more persons agree in applying the same combination of sounds to the same combination of essential attributes a name has come into existence; the objects to which it applies being indefinite in number, and, to a great extent, unknown to the persons who first used the term. They may be infinite. They may be few. They may be single. They may be non-existent in nature, *i. e.* creatures of the imagination only. They may be words like animal; or words like planet; or words like universe; or words like dragon, Centaur, or Hippogriff, &c. They may be words of any extent, or no actual extent at all. All that they have to do is to apply to such and such objects, as often as they exhibit such and such attributes, objects which may appear often, or rarely, or never—objects which we may see every hour in our life, or objects that we can only contemplate in the most excited state of our fancies. It is no matter whether we do it from our experience, or our hallucinations; but so long as we group together certain attributes, and designate the collection by a certain combination of articulate sounds, we create names; and so far as the other individuals

with whom we have conversed agree in understanding such names in the same way, we introduce our creations into language.

In this way common terms become current amongst considerable masses of men; the objects to which they apply being either alike or different in unessential attributes only. It often happens that at first the number of such objects is but small; commensurate with the limited experience of the first authors of the term. As time, however, goes on, as the number of speakers increases, and as experience enlarges, new objects are continually brought under the same denomination; so that the magnitude of the class increases in respect to the number of individuals that it contains.

Nor is this all. The larger the number of such individuals the greater the chance of differences between them. Hence, the number of unessential attributes increases, and doubts arise as to whether some of them may not be essential. The name that began with the object A, and was extended to B (between which and A there was no notable difference), may lose some of its intelligibility when it has arrived through C, D, E, &c., to X, Y, or Z. Nevertheless, so long as it applies to a certain number of objects, it is a common (or class) name, against which the worst that can be said is that the class to which it is attached is not a very natural one.

Such is the case when the name precedes the class, or (in other words) where the class grows out of the name, as is the case in ninety-nine hundredths of the ordinary language of common life.

98.

Relations, &c.—The Name growing out of the Class.

§ There are cases, however, where the process is reversed, and where the name grows out of the class. Such are the scientific terms of the chemists, botanists, zoologists, &c., where, *after* a full and sufficient knowledge of certain groups of individuals, and the determination of their essential attributes, we find that our class is one for which the rougher, looser, uncertain, and empirical phraseology of the current language, supplies no term sufficiently exact; a fact which forces upon us the invention of a new one.

EXTRACT.

“We have adverted much less than is usual with logicians to the ideas of a class and classification.—We have considered names as having a meaning quite independent of their being the names of classes.—As soon as we employ a name to connote attributes, the things, be they more or fewer, which happen to possess those attributes, are constituted, *ipso facto*, a class.—By every general name which we introduce, we create a class, if there be any existing things to compose it.—Classes, therefore, mostly owe their existence to general language. But general language also, though that is not the most common case, sometimes owes its existence to classes.”—MILL, b. i. c. 7, § 1.

99.

Classification.

§ Whether the class originate in the name, or the name in the class, it always happens that, as

time goes on, names show a tendency to change their signification. If it were not so, language would be greatly more uniform than it is.

Let a name originally apply to a few individuals, and let the difference between those individuals be slight. Let all the birds, for instance, to which the name *swan* applies be either white or whitish. At any rate let none of them be of a colour opposite to white. Let whiteness pass for an essential attribute of *swan-ship* (or *swan-hood*). What happens when a bird, black in hue, but in all other respects like a swan, presents itself? Are we to abandon the essentiality of the attribute whiteness? Or are we to deny to the new bird the name *swan*? It is not necessary to decide. All that it is, at the present time, necessary to notice is the undoubted fact, that there is hereby introduced into the question of names and classes a disturbing force of no slight importance.

We get a certain amount of disturbance from a swan that is simply *black*. But this is not much. There are other attributes that create greater complications. Let the swan that serves for our illustration be not merely a swan with certain *unswan-like* attributes, but let it have some of the characteristics of the *goose*. Let these be either actually essential, or considered to be so. What follows? Not only doubts as to whether the bird be a swan or not, but doubts as to whether it may not be a goose. Or it may be something intermediate to the two—neither swan nor goose, but some third sort of bird, anonymous, but capable of being named.

From birds let us go to bows—rain-bows. Observe the hues thereof. There is a decided red, a decided yellow, a decided blue, and a decided green. But this decidedness is not general. Where the blue and green join, the colours pass one into the other. So they do where the red becomes yellow, or the yellow red. So they do on all the confines of all the colours. When are we to say that that blue or red end, and green and yellow begin; and *vice versâ*? Where is the line of demarcation, the boundary; the line which, lying between the confines, may be said to *de-fine* them? Mark this last word, this compound of *de* (= *from*), and *finis* (= *end, limit, boundary*). Mark it, for it will appear in the sequel.

Some such line is evidently wanted.

Some such line is evidently wanted; but it is by no means as evidently attainable. It is only attainable where the transitions, though in many respects gradual, are still capable of being distinguished. When all the gradations are imperceptible, the name that served well enough for the central, typic, normal, or standard forms of a class becomes uncertain and indefinite on its confines.

In many of the complications thus engendered, the essential attribute steps in and helps us. But it is far from doing so in all, inasmuch as it is itself, in a vast number of cases, a matter of doubt. It is not every two or three speakers that agree as to what constitutes a swan as opposed to goose, or any other bird. Just as little is it every one who would fix upon the same point in a rainbow for the red to become orange, or the orange yellow.

Let us say, however, that, in certain cases, this can be done, and we come to the consideration of—

100.

Definitions.

§ We have seen from what the word *Definition* is derived ; and we anticipate its meaning. A definition is a *boundary*—a boundary by which all the individuals of a given class are included. So included, they are separated from everything else ; everything else being *excluded* from them.

Wherever there is a definition there is a name ; but it is not all names that either are susceptible of definition, or require to be defined. Definitions are wanted where the import of a name becomes doubtful ; the import of names becoming doubtful whenever the essential character is obscure, overlooked, or controverted.

The Name indicates the Class.

The Definition explains the Name.

Hence, whilst a Name constitutes a term, a Definition constitutes a Proposition ; a Definition being

A Proposition explanatory of a Term ; in all of which the Term to be explained is the Subject, the Term by which the explanation is made, the Predicate—

Subject.

Predicate.

A Definition is a Proposition declaratory of the meaning of a term.

Such is a definition of a Definition.—(See *Mill*, b. i. c. 8, § 2).

All definitions *denote* the objects of the class to which they apply. Nevertheless, it is not every denotation that is a definition. To point at a man crossing the street is to *denote* him. To lay your hand on him and to say *this is he*, is also to denote him. Nevertheless, pointed fingers and the use of words like *this* and *he* are not considered to be modes of definition. That they partake of its nature is clear. Still, it is not the habit of language to identify them.

Words susceptible of definition must *connote*, as well as *de-note*, something; this being only another way of saying that they must be common (or class) names.

DIALOGUE.

A. John is a man.

B. But what is a man?

A. Man is everything to which the combination M A N applies—this being the name of a class.

B. What constitutes that class?

A. Certain attributes, such as animality, rationality, and others of either less importance or involved in these.

B. The definition, then, of M A N is that it is a name connoting certain attributes.

A. Yes; or a name which, when predicated of any subject, implies that that subject possesses them. In such a sentence as *John is a man*, the word M A N is the predicate. In *Man is a rational animal*, it is the subject.

It is not always that we can define a class, or (to speak more accurately) the meaning of a class-name. How can we do so when it runs into another by imperceptible gradations?

EXTRACT.

"A name ought to be like a boundary, which clearly and undeniably either shuts in or shuts out every idea that can be suggested. It is the imperfection of our minds, our language, and our knowledge of external things, that this clear or undeniable inclusion or exclusion is seldom attainable, except as to ideas which are *well within the boundary*. At and near the boundary itself all is vague. There are decided greens, and there are decided blues; but between the two colours there are shades of which it must be unsettled by universal agreement to which of the two colours they belong. To the eye, green passes into blue by imperceptible gradations. Our senses will suggest no plan, on which all agree, at which one is to end and the other to begin.

"But the advance of knowledge has a tendency to supply means of precise definition. Thus, in the instance above cited, Wollaston and Fraunhofer have discovered black lines which always exist in the spectrum of solar colours given by a glass prism in the same relative places. There are definite places in the spectrum, by the help of which the shade of any colour therein existing may be ascertained, and the means of definition given."—*Formal Logic*, p. 35.

101.

Classification by Type.

§ It is only, then, as knowledge advances, that certain definitions become possible. What are we to do in the mean time? The answer to this was found in the fact that, although some of the members of a given group may be on the debateable land between two classes, there are others which lie *well within the boundary*.

Say that some lie in the very centre of the in-

closure, equally distant from the confines of any of the classes with which its frontiers may come in contact ; as is the case with centres of each of the coloured bands of the rainbow ; as is the case with the red where it is equidistant from the purple on one side and the orange on the other. We can, in such cases, take such members of the class in question as standards, samples, or types, of the group to which they belong, and, so doing, arrange the remainder around them ; the nearest being the most unequivocal members of the class, the next nearest being somewhat less, the more remote intermediate to some other class, or (possibly) of doubtful position.

To do this is to classify by *types*, as opposed to the classification by means of *definitions*.

In the former we take a central object and group others round it, without much caring whether the outsiders (so to say) belong to the same class as those of the interior.

In the latter we draw a line round a certain number of objects, without much caring whereabouts, within the inclosure, they lie, provided only that they *do* lie within it.

102.

Equivocal Names.

§ The same combination of sounds does not always make the same word. Where there is a difference of meaning there is also a difference of name.

In the following propositions there is but one combination of sounds, viz. L, I, G, H, T.

Yet the number of names is two.

Light is contrary to darkness ;

Feathers are *light* ;

Feathers are contrary to darkness.

Change the language, and the equivocal becomes transparently manifest.

Lux est contraria tenebris ;

Plumæ sunt *leves* ;

Plumæ sunt contrariæ tenebris.

Words of this kind are called *equivocal*, having one form, but two meanings.

PART III.

PARTS OF SPEECH.

103.

Parts of Speech.

§ What is meant by a Part of Speech? In *one* sense every word that exists in language is a *part of speech*, inasmuch as it is by means of words that the speech by which man communicates with man is constituted; human speech being made of words. But these words are, again, made up of syllables; the syllables being, again, made up of certain elementary sounds. If so, every syllable is a part of speech, and so is every elementary sound.

But this is not what the grammarian means when he talks of a Part of Speech; as he often does. Sometimes, indeed, he talks or writes about *the* Parts of Speech, as if there were something special and particular, requiring the use of the definite article to denote them. Open any ordinary grammar, and it is an even chance that the first sentence runs thus—"The parts of speech are eight" (or "nine" as the case may be), "Noun, pronoun, verb," &c.

Sometimes the opening sentence of grammar is

to the effect that "Grammar is the art of speaking and writing correctly," but the ordinary opening is the one just given.

Such is the importance of the parts of speech—noun, pronoun, verb, participle, &c.

104.

Parts of Speech.—Number, Criteria, &c.

§ Nouns, pronouns, verbs, participles, adverbs, conjunctions, prepositions, interjections, and the like, are the parts of speech now under notice; and there is something beyond what is found in the ordinary grammars to be said concerning them.

There is something to be said concerning the *number* of them:

Something also concerning the *criteria* by which they are separated from each other.

105.

Parts of Speech.—Number of them.

§ And first concerning the *number* of the parts of speech. Sometimes it is said that the parts of speech are eight, sometimes that they are nine, sometimes that they are no more than three. In Latin, where the article is wanting, the list runs—noun, pronoun, verb, participle, adverb, preposition, conjunction, interjection. Total, eight.

In English we have an article (*an* and *the*), which makes our parts of speech, from a Latin point of view, nine.

But some writers, instead of speaking of nouns, speak of substantives and adjectives, by which they make two parts of speech out of one ; in which case their list runs—substantive, adjective, pronoun, &c.

Finally, there are many who limit the parts of speech to the noun, the verb, and the particle ; referring to the first, the substantive, the adjective, and the pronoun (including the article), to the second the participle, to the third the remainder.

All, however, agree in this, viz. the recognition of the terms noun, substantive, adjective, pronoun, article, verb, participle, adverb, preposition, conjunction, interjection, particle, along with other names less general, such as numeral, cardinal, ordinal, relative pronoun, personal pronoun, &c.

106.

Parts of Speech.—Criteria.

§ So much concerning the extent to which grammarians differ in respect to the number of the parts of speech, and so much concerning the extent to which they agree in admitting, that in some sense or other, nouns, verbs, &c., are parts of speech. How do we account for their agreement, how for their difference ?

The reason for their agreement lies in the fact of certain fundamental principles lying at the bottom of all forms of speech, however different from each other in detail.

The reason for their difference is not so simple. Sometimes it arises out of the actual difference of language, one language wanting something that the other has ; this being the case with the Latin as

compared with the English in respect to the article.
An Englishman can say—

The son of the father ;
The son of a father ;
A son of the father ;
A son of a father.

The Roman could only say *filius patris*.

Generally, however, there is a difference between the views taken concerning the marks, signs, characters, tests, or criteria by which one part of speech is separated from another. “Why,” says one writer, “make the two classes of substantives and adjectives when the single class of nouns would suffice?” “Why,” writes another, “make a class of nouns in the first instance, when the moment you come to the practical details of your grammar, you have to divide it into substantive and adjective?”

107.

Parts of Speech.—Criterion, the Place of a Word in a Proposition.—Categorematic, Syncategorematic and Hypercategorematic Words.

§ The reader may easily see beforehand what will be the criterion by which the place of a word as a part of speech will be determined. It will be a noun, pronoun, verb, participle, &c., according to the part it takes in the structure of a proposition.

For further preliminaries see §§ 21—25.

These will lead us to the notice of three new terms—compounds of the word *category*.

Categoria is, in the first instance, an *accusation*, the language from which it is derived being the

Greek. To accuse is to charge with—to impute to—to attach a certain character, or even a characteristic—to mark—to define—to place in a class. Hence, *category* comes to mean class, there or thereabouts.

A word which can, by itself, form a term is called *categorematic*.

A word which cannot, by itself, form a term, but can, by itself, form a part of one, is called *syncategorematic*—*syn* = *with*, and implying union or conjunction with other words.

A word which, by itself, can form a term and something more (a predicate, for instance, and a copula) is *hypercategorematic*—*hyper* = *over* and implying excess.

The words in §§ 21, 22, and 23 are *categorematic*.

The words in § 24 *hypercategorematic*.

The words in § 25 *syncategorematic*.

108.

Categorematics, &c.

§ Categorematic words are either nouns or pronouns, and if a word belong to neither of these classes it is other than categorematic, *i.e.* it is something either less than categorematic or more than categorematic.

Categorematic words by themselves and single-handed, can form terms, *i.e.* either subjects or predicates or both.

Hypercategorematic words are verbs. They can form, by themselves and single-handed, predicates and copulas at once.

Synecategorematic words are adverbs and prepositions; to which add articles.

The position of the article is peculiar, as will soon be shown. At present, however, it stands in the same group with adverbs and prepositions.

Participles, conjunctions, and interjections also require a separate notice.

109.

Categorematics.

Categorematic words fall into two divisions, according to the kind of term they are capable of forming. Every word that can form a subject, can form a predicate also. The converse, however, is not the case. There is a large class of words which can form predicates, but cannot form subjects. A word that forms both subject and predicate is either a substantive or a pronoun. A word that can form predicates only is an adjective.

110.

Categorematic Words Subjective or Predicative.

§ This is the way we express ourselves when we adopt the language of the grammarian, taking it as we find it, and treating the words substantive, adjective, and the like, as if they were ordinary terms of common life, the meaning whereof is generally known—as, indeed, it actually is. I have already stated that no one is likely to investigate subjects, predicates, and the like, who has not made a previous acquaintance with nouns and verbs. This is not as

matters ought to be, but as they are. The logical terms might, much more advantageously, be learned before those of the grammarian, the import of which they most especially explain.

To proceed : the categorematic words which can form predicates only may, if necessary, be called predicative ; those that form subjects and predicates as well, being called subjective. No more complex word than this is wanted. No such word as subjectivo-predicative, or the like, need be coined. Whatever can be a subject, can be a predicate also ; and the simple term subjective does as well as a longer and more compound word.

The subjective categorematics, then, coincide with substantives ; the predicative with adjectives, *to a certain extent*.

111.

Categorematic Words Nominal (Subjective) and Quasi-Nominal (Predicative).

§ The word subjective and substantive, predicative and adjective, coincide to a certain extent—to a certain extent, but not altogether. There is a considerable class of subjective terms which a grammarian would hesitate to call substantives ; in other words, it is only *some* of the subjectives that are substantive. In order to understand this, we must look upon our subjects and predicates in a fresh light. How far are subjective and predicative words *names* ? Something upon this question has already been written in § 68 ; where it is stated, that although such a word as *whiteness* is a name, such a word as *white* is not. *Whiteness* is the

name of an attribute. *White* is no true name at all. It is only a word which suggests one. Many doubt this; many deny it. Many say that *white* is a name. Many say that *white* is the name of *white thing*; also that *white* is the name of the attribute *whiteness*. But a little consideration will show that *white* the adjective, and *white* the substantive (*i.e.* the equivalent to *white thing*, *white person*, &c.), are in different classes. And a little consideration will show that the *name* of the characteristic attribute of white things is *white-ness*, (not *white*.)

That words like *white* are neither the names for *white objects* nor the names for the attribute of *whiteness* becomes plain and clear after a very little consideration. The question whether they are *names* at all, is somewhat more complicated. It is possible, and not difficult, to define the word *name* in such a manner as to include not only adjectives, but a great many other words besides. Hobbes' definition (for instance) does this, which is to the effect that a name is an arbitrary word, serving for a mark, and raising in our mind a thought like some thought we had before, and which when pronounced to others may serve as a sign of the thoughts of the speaker.

A definition of this latitude would convert not only adjectives, but interjections, into names.

A definition of this latitude, even if it suit the logician, is unfit for the grammarian, who finds it convenient, if not necessary, to limit the word *name* to substances. Common language does the same. It is difficult to imagine a name without some object named. And what can this be but a

substance? At the same time adjectives so invariably *suggest a name*, that though they are not names themselves, they are nearly so—very nearly so. They are names within a little. They are all but names. They are so near to names that if we call the subjective categorematics nominal, we may call the predicative quasi-nominal, words.

Let Subjectives, then, be called *nominal*, from *nomen* = *name*.

Let Predicatives be called *quasi-nominal*, from *quasi* = *as if, as it were*.

Instead of *nominal word* we may say *name*.

112.

Names.—Convertible or Inconvertible.—Pronouns or Substantives.

§ Names are either convertible, like *I, thou, he, this, that, &c.*, or inconvertible, like *man, horse, stone, &c.* (See §§ 93, 94.)

A convertible name is a Pronoun; an inconvertible name a Substantive.

113.

Pronouns names of Substances.—How far Individual.

§ The first fact to be attended to in the notice of the pronoun is the fact of its being a *name* at all. That it is one has already been stated. It has also been stated, that in order to be one, it must apply to a substance. In this it differs from the adjective, which is no name at all.

On the strength of its being a *name*, on the strength (we may say) of its *nominal character* (or *nominality*), a pronoun can play the part of a substantive in a proposition, and be subject or predicate, just as the speaker chooses to make it.

That a pronoun *is* actually a name—a name of a substance—is clear. What do we mean by *I*, by *thou*, by *this*, by *that*, &c.? Most undoubtedly a substance; a substance with all its attributes, many or few, as the case may be. The *whatever* or *whoever* answers to the word *this*, is an object of which either the senses or the imagination can take cognizance. It may be a *man*, a *horse*, a *stone*, a *Phœnix*, or a *cardinal virtue*; still it is an object, and when we know *what* or *who* is meant we can change the pronoun into a substantive, and say *man*, *horse*, &c., instead of *this*, *that*, &c. The fact is, that in their application, pronouns and substantives are connected with exactly the same class of objects, the *something* which they denote being the same, the way in which they denote it being different. Contrast with this use of words like *I*, *thou*, &c., that of words like *red*, *white*, &c., and you will see the difference between the pronoun and the adjective, and the extent to which the former is an actual name, whereas the latter is only a word suggestive of a name.

A pronoun, then, is a kind of substantive—at any rate, it is a name applied to substances. There is, however, only one kind of substantive with which it agrees; with the important class of common (or general) names it has little to do. All pronouns (as has been already stated) are individual, or singular, or proper names. None are common.

They are all words like *John* or *London*, rather than words like *man* or *town*.

Nevertheless, there is no single member of any class of objects whatever to which such a pronoun as *this* or *that* may not apply. It may mean a *man*, a *horse*, &c., as aforesaid. Surely this is anything but individuality, singularity, or propriety. Is it not something rather the opposite? Is there not an idea of generality, plurality (I had almost said impropriety), attached to a name which may denote any one object out of a million (or more) indifferently? What can well be commoner than a term which will denote anything or everything? Individual names have been said to apply to things of which there is one only (one and no more than one), and singular has been said to mean much the same as individual. The name, however, of the things that such a word as *this* can apply to is legion. Yet *this* is an individual, or singular, name.

Proper names, too, seem at first, to be as unlike pronouns as they well can be. A proper name is a name *appropriated* to some particular individual; *appropriated* in such a manner as to be incapable of any application elsewhere. To name a man *John*, and to call him *Thomas*, is not to name him at all. It is to *misappropriate* two terms at once, to rob *Thomas* without enriching *John*. Yet one and the same object may be called *this* and *that*, *I* and *thou*, and no misappropriation occur. Nevertheless, *this* and *that*, *I* and *thou*, &c., are proper names.

The explanation of this apparent complication is simple. It lies in the fact, so essential to their constitution, of pronouns being convertible, or variable, names. A pronoun may mean anything whatever,

and apply to any amount of objects real or imaginary. But it can only mean, denote, or signify *one object, or group of objects, at a time*. As long as John speaks of himself, *I* means *John*, but when Thomas talks of *his* self, *I* means *Thomas*. As long as a certain *white* stone is nearer to me than a certain black one, *this* means *white stone*. Change their places, and it is better expressed by *that*; the *black stone* being what answers to *this*.

Pronouns, then, in so far as they denote but one object (or one collection of objects) *at a time*, are individual, singular, or proper terms. They depart, however, from the character of the true proper names, like *John* and *London*, in being able to express any amount of different objects *at different times*. In short, they are (as aforesaid) variable or convertible names.

114.

Pronouns the Names of Substances.—How far Common?

§ If pronouns depart in some respects from the character of the true and typical individual, singular, or proper, how nearly do they approach that of the common, or general, names? The exact measure of the distance is as unimportant as it is unattainable. It is only certain that there is a broad line of demarcation between them. A common name, however generic it may be, always denotes objects that have a certain real or supposed relation to each other, objects with a certain amount of attributes in common. An *oak* and a *seaweed*, are equally vegetables, a *mite* and an *elephant* equally

animals; but no one would call a *book* a vegetable, or an *inkstand* an animal. Yet an *oak*, a *seaweed*, a *mite*, an *elephant*, a *book*, an *inkstand*, a *griffin*, a *colour*, a *virtue*, may all be denoted by words like *this* and *that*; indeed there are no two objects in the whole range of the real or the imaginary universe, that are so unlike each other, as not to be brought under the designation in question, and that easily, and without the creation of either obscurity or ambiguity of language.

Though a pronoun is a name, it is not a class-name. It applies, indeed, to objects numerous enough to form a class; but this is not sufficient. Objects, to form a class, must not only exist in certain numbers, but bear to each other a certain amount of resemblance. This is done by their having certain attributes in common.

This means that, whilst common names are connotative, pronouns are simply notative.

Connotative names (§ 94) are founded upon the existence of more attributes than one; notative on the existence of one only. Hence, a pronoun is in the same class with words like *John* and *London*, rather than with words like *man* and *town*.

115.

Pronouns the Names of Substances.—Simply Notative (Denotative).—The Attribute they denote that of Relation.

§ It is in their convertibility that the peculiar character of the pronouns exists.

Except so far as it is convertible, a word like *I* is neither more or less than an expression like *the*

present writer, R. G. Latham, or any other designation of the author of the page now under notice.

Now this convertibility of the pronouns arises out of the *nature* of the attribute that it expresses.

The attribute expressed by a pronoun is, always and exclusively, an attribute of *Relation*, and it is to the fact of relations being changeable, that the properties of the pronoun are due.

Relations change. Qualities are (what is called) inherent. For an object to be called *red* it must, *in, and of itself*, possess the quality of *redness*. For an object to be designated as *this*, it requires no peculiarity of constitution at all. It merely requires to be in a certain relation to the speaker, or some other object. It may become *that* without any alteration whatever *of itself*. It need not even change its place. It is enough for the speaker to change his, or for a different speaker to talk about it.

A pronoun, then, is the name of a substance, denoted by a single attribute, that attribute being the attribute of relation.

As the name of a substance, it can form the subject of propositions, and, as the ordinary substantive can do no more, it is, in that respect, substantial.

As a name founded on the denotation of a single attribute, it connotes nothing, and consequently, can be applied to anything, though only to one object *at a time*.

But as that single attribute is the attribute of relation, and as relations can change, pronouns can be applied to any number of objects *in succession*, however different.

116.

Pronouns as compared with Proper Names.

§ I here use proper names in the ordinary sense of the grammarians ; meaning by it names like *John, London, &c.*

What do they connote ? Nothing.

What do they note or denote ? Less than the pronouns ; and be it remembered that the pronouns denote but one real attribute.

How can a word that denotes less than a single real attribute denote anything at all ? This we must investigate. We must investigate it in order to see in what respect the pronoun differs from the proper name.

The information that a proper name gives us is purely, absolutely, and exclusively negative. What do I know of the individual called *John* from the combination J O H N ? I guess that it means a human being of the male sex ; but this is only from knowing that it is to such objects that it generally applies. It may mean a *dog*, a *horse*, a *ship*—anything.

All that the name really tells me is this, viz. that the object to which it applies bears that name, or is supposed to bear it ; that it is not a *Thomas*, a *Charles*, a *London*, a *Julius Cæsar* ; that it is not, in short, anything not called *John*, or rather that it is not anything called by a name other than *John*. Certainly, this is little enough. Yet more than this I am unable to find in the ordinary proper name. It simply excludes so many others.

Now this is what is done by the pronoun. Words

like *I* and *this*, &c., exclude words like *thou* and *that*, &c. But they do something more. They tell us something positive. What *I* may mean altogether I cannot learn from the word itself. It most probably means a human being. It is even chances that, meaning a human being, it means a person of the male sex. But it may mean something different. In Æsop's fables it means a *lion*, *tiger*, *dog*, *fly*, &c. In Homer it means *gods*, *goddesses*, *demons*, &c. It may mean anything that any one may imagine to be endowed with speech, and to use it in talking about itself. Nevertheless, it means a speaker of some sort.

In like manner *thou* means an object spoken to.

Again—*this*, however little it may tell us as to the nature of the object that it denotes, tells us that it is nearer to some speaker than the object designated *that*.

This is more than is done by the ordinary proper name, the difference between which and the pronoun it has been the object of the present section to illustrate.

117.

Pronouns as compared with Adjectives.

§ Relation is an attribute. Quality is no more—no more and no less.

The *red-ness* or *white-ness*, of an object is one of its attributes. The *this-ness*, or *that-ness*, of one is the same. The words are somewhat strange. The things, however, are alike. From *red* and *white*, we get the abstract forms *red-ness* and *white-ness*, and we can get the same from *this* or *that* if we

want to do so, without violating the rules of language.

There is something, then, common to the pronoun and the adjective; something common, notwithstanding the substantival character of the former upon which so much has already been written.

To say,

The rose you speak of is *red*,
and to say,

The rose you speak of is *this*,
is to utter a pair of exceedingly similar propositions; propositions which agree in giving a certain attribute to a certain flower. The first gives it that of *red-ness*, the second that of *this-ness*.

Yet there is a great difference in the import of the two predicates. The former, in giving us *red-ness*, gives us but one out of the many attributes that constitute the substance *rose*. The latter, in giving us *thisness*, gives us the rose itself, *i.e.* the self-same substance under another name.

The name *rose* is the name of substance, *i.e.* of the aggregate of so many attributes.

The name *this* is the name that that substance bears so long as it is in a certain relation to some other substance.

Red is no name at all. It is a word which suggests, or implies, the name *redness*. But when we have got this, what is it? It is no name for a *rose*, but only a name for one of its qualities. Neither is it the name for the qualities of a rose exclusively. It is the name of one of the qualities of a *brick*, an *Indian*, a *soldier's coat*, &c., &c.

The difference between what is implied by a name expressive of a relation and a name expres-

sive of a quality is the difference between a part and a whole, and this is the difference between a pronoun and an adjective.

118.

Pronouns as compared with Abstracts.

A pronoun is the name for a substance.

It is the name of a substance based upon one (and only one) of its attributes.

But that attribute, being the attribute of relation, has the peculiar properties just indicated. It applies to a whole substance, and applies to any amount of different substances *at different times*.

In short, as a name, it is variable, convertible, temporary, ephemeral, momentary, transferrible, a name *pro hac vice* (so to say).

The great majority of the substances to which pronouns apply are concrete; *i.e.* when we come to know, we find that, though known only through one attribute, they have many.

An abstraction is a substance with one attribute only; *i.e.* the attribute which gives it its name. *Redness*, for instance, is a substance of which we can only say, in the way of predication, that it is *red*.

It may be objected that this is no substance at all. Perhaps it is not etymologically. It is certainly not so to the senses. It is a substance, however, to the intellect; and it is a substance in grammar. It is something that the *mind* can contemplate *in and by itself*. It is a something of which we may talk as we talk of the most concrete objects in existence.

No matter how immaterial, unsubstantial, or unreal, such somethings as goodness, whiteness, &c. may be, no matter how little any of our senses take cognizance of them, no matter how difficult may be for even the intellect to realise any *defined* notion of them, they are, still, in the eyes of the philologue and grammarian, substances, or something possessing the grammatical attribute of substance. He can, for instance, say, *Goodness* is the condition of *happiness*; or, *Happiness* is the reward of *goodness*. He can say, *in goodness* from *goodness*, *by goodness*, &c.; and this is all he could do if the word before him were *house* or *man*; or the name of some object remarkable for its power of striking the senses by its physical properties of tangibility, visibility, or audibility. The writer* from whom I take this statement, admits and insists upon this property of abstract terms, though he adds, that "this indispensable and necessary use of language, in the common business of life, is the root of the most glaring fallacies, when we have occasion to reason on the fundamental principles of things in general."

An abstract name, though it has a substance, has nothing concrete answering to it. A pronoun has always a substance, and generally a concrete one (*i.e.* an object of more than one attribute), to which it applies.

This is the difference between a pronoun and an abstract name.

The substance that answers to a pronoun may be, and generally is, concrete.

* SIR GRAVES HAUGHTON, *Prodromus*, p. 11.

The substance that answers to an abstract name never is, and cannot, *ex vi termini*, be concrete.

(119.)

Criticism.—Use of the Word Noun.

§ If the doctrines of the preceding sections are true, the existing phraseology of the ordinary grammars is exceptionable; complications arising out of the use of the word *noun*. The effect of it is to separate the substantive too much from the pronoun, and to connect it too closely with the adjective.

In the first place, noun is derived from the Latin *nomen* = *name*. But the present treatise denies that adjectives are names, and gives reasons for the denial.

The present treatise maintains that a name implies a *nominé* or object named. Now there is no *nominé* to an adjective. It is no answer to this statement to say that *white*, *red*, *old*, *new*, &c., are the names of substances, things, or objects. They are not so. *White thing*, &c., are names; but the nominal part lies in the word *thing*. All that the words *white*, &c., suggest is, the existence of a certain attribute as one amongst others constituting a substance. For this attribute (as aforesaid) *white*, *red*, &c., are not the true names. The true names are *whiteness*, *redness*, &c.

The exact form which the language of a grammarian should take, in order to obviate these difficulties, is by no means an easy question. Neither is it one which any single writer is likely to determine. The practice of teaching, along with the investigations necessary in the higher branches of

philology, will, sooner or later, decide what portions of the present phraseology should be kept, and what allowed to grow obsolete. Meanwhile, it is convenient, for the present, to forget as much as possible the connection between the words *noun* and *name*—adjectives being nouns, but not names. It is also convenient to ignore as much as possible the element *pro* in the word *pro-noun*, or, at any rate, forget that it means *for*. This is needful because the pronoun is really as much of a noun as the substantive itself, and more of one than the adjective. To a certain extent it is, doubtless, a substitute. Every pronoun, like every proper name, has its equivalent. To every proper name there is the common, or general name of the class to which the particular individual under notice belongs. Thus, wherever there is a *John* or a *Bucephalus* (as usually understood), there is a *man* or a *horse*. In like manner to every pronoun there is a corresponding substantive, *this* and *that* always meaning something (*house, man, &c.*, as the case may be), though meaning it in a different manner.

As far, then, as this is substitution, pronouns are substitutes for nouns. But proper names are also substitutes for common ones. Be it so. It follows that, with a change of view, nouns are substitutes for pronouns, and common names for proper.

Now the evil of making the noun the standard and the pronoun the substitute, makeshift, or shadow of the noun lies in the circumstance of its being extremely likely, as a matter of fact in the history of language, that the pronoun is, in many instances, the older word of the two. The evidence upon this point lies within the domain of another

investigation. At present, it is sufficient to indicate its existence.

A third point upon which we may be chary is the recognition of the use of the word *noun* as the name of a *genus*, to which adjectives and substantives are species. At any rate, we ought to give the same generic character to the pronouns; some of which are substantival rather than adjectival (*I, thou, he*); others adjectival rather than substantival (*this, that, some, many*).

The use of the word *appellative* to denote the words capable of forming both subjects and predicates, with which power it has the application of the ordinary word *noun*, and includes substantives and adjectives, though recommended by the present writer in an earlier work,* is called for only occasionally; on occasions, however, it is useful.

(120.)

Criticism.—Plurality and Non-plurality of Attributes.

§. In all the previous sections, when the subject admitted, much was said concerning the extent to which a given substance had one, or more than one, attribute. Some had many, some few. Between those, however, which had only one, and those which had more than one, the difference was evidently considered to be important. Indeed, it was this which made the distinction between individual and common names.

* Preliminary Dissertation I. to the fourth edition of *English Language*.

Of these two classes, each fell into subordinate divisions.

Common names differed chiefly from each other in being more or less generic, *e. g.* *man* was more generic than *Englishman*, *animal* than *man*, *organized being* than *animal*. Individual names did the same. Proper names implied no attribute at all; pronouns, the attribute of relation; abstracts an attribute, which, whatever it was, appertained to a substance which had no other attribute but it. Of all these classes the characters were well marked.

The attributes of the proper name were fractional, so to say, *i. e.* less than unity.

Those of the pronoun and the abstract substantive agreed in being but one, or in their *one-ness*; but between them there was this difference—when the substance which the pronominal name denoted was known, it might be, and generally was, *as a substance*, one of many attributes; the *one-ness* of the attribute belonging to the name. In other words, the non-plurality of attributes was *nominal*.

Meanwhile, the non-plurality of attributes in the case of the abstract name was *real*; *i. e.* the substance itself, when known, having one and one only.

Change the name of a substance expressed by a pronoun, and you may get a concrete substantive.

Change the name of a substance (*redness*, for instance) denoted by an abstract name, and—But why proceed? The thing cannot be done. Whilst every substance expressed by a pronoun has a second name, substances expressed by abstract names have but one.

Need more be said to show that, in the eyes of the present writer, at least, the plurality or non-plurality of attributes is of the highest importance? It makes all the difference between notation and connotation. For the value of *this* the reader is referred to the work so often quoted, *Mills' Logic*; where the bearing of the latter upon language as an instrument of thought is fully, but not too fully, illustrated.

What, however, if we consider (what may be called) the *named-ness* of an object an attribute? In such a case, the true and typical proper name, like *John* or *London*, instead of being a word which gives us no attribute at all, is the name of an object with a name—the name itself, or rather the fact of the name being borne by it, being, if not an actual attribute, an approach to one. If this be the case, every object that has a name has, *ipso facto*, an attribute.

Considering, then, the possession of a name as one attribute, it follows that words like *I*, *thou*, *this*, &c., which, over and above the fact of their being named, give us a relation as well, may be said to have two, and, having two, to be connotative. At any rate they are names implying a second attribute.

I submit that, as far as this is an objection, it is one easily remedied (should need be) by a slight change in the terminology. The material fact of names that give us a relation being different from names that give us neither a relation nor anything equivalent to it, still remains.

But this is not all. It may be said, that, even according to the view taken in our preceding section of the import of names like *John* and *London*,

they are relational. All that a name like *John* tells us is, that the object which bears it is other than *not-John*—the universe being *not-John* and *John*. This, it may be said, involves a relation. Be it so. The difference between the name of an object contemplated in its relation to the speaker, or some object known to the speaker, and the name of an object viewed in relation to everything else, is still of great practical importance.

121.

The Attribute of Quantity.—Quantity a Relation.

§ The three attributes to which the chief prominence is given by writers on the philosophy of grammar are—(1) the attribute of quality; (2) the attribute of quantity; and (3) the attribute of relation.

Quantity, from the Latin word *quantus* = *how great*, properly applies to *magnitude* rather than *number*, that is, if we look to its derivation only. The answer, however, to the question *how many* is, in ordinary parlance, a case of *quantity*.

Q. How many are there?

A. Three. This means—

There are three—or

The number is three.

Here *three* is the predicate, just as *white* is the predicate in the words *snow is white*. Can we talk of the *three-ness* of anything? Yes. The phrase, though awkward, is allowable. At any rate there is such a thing as the *triple character* of an object.

Little need be said respecting the attribute of

quantity, except that, whatever it may be in other points of view, it is in the eyes of a grammarian an attribute of relation, so that the place of a numeral in a proposition is that of the pronoun rather than the adjective. Indeed, in most grammars (perhaps in all), the numerals and pronouns are noticed together.

122.

The Attribute of Quantity.—Cardinals and Ordinals.

§ The relation, however, between the cardinal and ordinal numbers is sufficiently remarkable to command a short notice.

It most nearly resembles that of words like *this* and *that* on the one side, and *here* and *there* on the other. Compare such a series as *first*, *second*, and *third*, with *this*, *that*, and *t'other* (to use a familiar abbreviation), or *this*, *that*, and *yon*, and the extent to which both have the character of ordinality is manifest. *First*, *second*, *third*, is a sequence of which the words *nearest*, *not so near*, and *further*, give almost a translation. And what are these but *this*, *that*, and *yon*, under another form? The relations in space are identical.

Again—like *this*, *that*, and *you*, the words *first*, *second*, and *third*, imply the existence of a substance to which they correspond. These are truly names; though convertible. This, however, we have learnt already from their place as pronouns.

The relations of the cardinals to words like *here*, and *there*, is less clear. Neither is it so clear that *here* and *there* stand in the same relation to *this* and *that*,

as *one* and *two* do to *first* and *second*. Let us mark, however, the points in which they agree. That *here*, like *this*, implies a closer, and *there*, like *that*, a less close proximity is obvious. And they imply it in the same way. *This* and *that* attach themselves to substances ; *here* and *there*, to certain points in space ; the objects occupying those points making no part of the idea. And this is the case with *one* and *two*.

If this view be accurate, the cardinal numbers are more or less adverbial in character. Be it so. They may be this, and yet retain much of their pronominal character. But they are adjectival also. We can say *one man*, *two men*, &c., just as we can *a few men*, *many men*. Equally adjectival are *here* and *there* ; words which, etymologically speaking, are dative cases of the demonstrative pronouns.

The ordinals answer to the question *which* ? the cardinals to the question *how many* ?

Q. *Which is this ?*

A. *The first, second, &c.*

Q. *How many are there ?*

A. *Three.*

To this extent, then, the relation between the cardinality and ordinality of the numerals is peculiar. It is *not* that of abstract and concrete. If it were so, the phenomenon which the numeration of (I believe) every language on the face of the earth would exhibit would be most anomalous. It would exhibit a reversal of the very general rule that the abstract is derived from the concrete, and not the concrete from the abstract ; inasmuch as, in all cases known to the present writer, the cardinal is the simple, the ordinal the derived form ; the

cardinal being the analogue of the abstract, the ordinal of the concrete.

In one respect, indeed, there is actually an abstraction and concretion. The cardinal gives us the number *minus* any particular object to which it applies. The ordinal, on the other hand, has always something with which it *concerns* itself. Neither relation, however, is the relation of *red* to *redness*, or *redness* to *red*. On the contrary, both the cardinals and the ordinal *may* (if necessary) take each their own proper abstract. We may talk of the captain of a class in school being proud of his *firstness*, just as the second may be said to be vain of his *forwardness*.

On the other hand, the word *one-ness* has been found necessary in more than one passage of the present work.*

123.

The Article.

§ The part of speech now coming under notice is one which, in some languages, commands no attention whatever, inasmuch as it is not found in them. The Latin language has no article. At the same time

* The points which the cardinals and ordinals have in common with the concretes and abstracts have had more stress laid upon them in a previous treatise of the author's than the present. In Preliminary Dissertation I. to his *English Language* (last edition) he considers the relation between them to be so far those of the abstract and concrete substantives as to look upon the fact of the ordinals being the simpler in form as an approach to a philological paradox. Without exactly thinking this, at present, he looks upon the development of the two series as one of the most interesting questions in language.

each and all of the languages derived from the Latin have one, or more than one. The French has the article *le* = *the*, and *un* = *one*. So have the Italian, the Spanish, &c. But the Wallachian article is the most remarkable. It *follows* the noun to which it belongs, instead of preceding it. It also coalesces with it, so that the two form one word. Thus if *om* = *man*, the combination *om-ul* = *the man*. In this case the article is said to be *post-positive*, or placed after the substantive.

Now this post-position of the article is by no means a rare fact. Neither is its amalgamation with the substantive. What occurs in the Wallachian occurs in the Icelandic also. So it does in the Danish, Swedish, Norwegian, and Feroic, derived from it.

If these facts be rightly interpreted, they will suggest the likelihood of the article being one of those parts of speech which originate during the later rather than the earlier stages of language; as, indeed, it is.

They will also suggest the manner in which a part of speech, originally non-existent in a language, may be developed. If the Latin be the mother-tongue of the French, &c., and these contain articles, how came those articles there? In the original Latin they were wanting.

The investigation of this will tell us that, although the so-called articles of the modern languages are wanting in the old Roman, the materials out of which they might be made, created, evolved, or developed, were present. The Latin had the word *unus* = *one*. It had also the words *ille*,

illa = *he* and *she*. Now the French *un* = *a* = *unus*, the indefinite article having grown out of the numeral. And the French *le* = *ille*; the definite article having grown out of the demonstrative pronoun,—oftener called the personal pronoun of the third person, but really the demonstrative.

Neither was the French process of evolution or development peculiar. The articles of all the allied languages arose out of these same pronouns, *unus* and *ille*. Only, however, in Wallachian did it *follow* the noun. This is sufficient to show that, in one respect, at least, the article is, if no full and true pronoun, at least, pronominal in its origin. Should, however, the instances from the tongues just cited be held insufficient, it may be added that, *mutatis mutandis*, the origin of the articles in the languages allied to our own is the same. What is *the* but a word of the same origin with the demonstrative *th-is* or *tha-t*? What is *a* but *an*; and *an* but *án* (Anglo-Saxon) and *ane* (Scotch); and *án* or *ane* but *one*?

So much, then, for the *origin* of the article, and the points in which it agrees with the pronoun. Those in which it differs from the pronoun are, at least, of equal interest.

A pronoun is essentially categorematic. If it were not so it would not be a pronoun.

An article is essentially syncategorematic. If it were not so it would not be an article.

An article is syncategorematic at least; and in many cases it is something more. It not only attaches itself to its substantive, but it may actually coalesce, amalgamate, or become incorporate with it. At any rate, it may join on to the body of the

word, as has been suggested in § 27, and as the name indicates.

Such being the case, the impropriety of putting the article at the head of the list of the parts of speech, as is done in many grammars, is apparent. Separated from the pronoun out of which it originates, and connected with the substantive, adjective, or noun, with which its real relations are only indirect, it is quite out of place; only taking its proper position when in contact with the pronoun.

Pronominal, however, as it is, it is still *syn-categorematic*; and (so being) supplies an instance of a part of speech losing its categorematic character, and becoming something else. How is, this done? The first point to be remembered is, the fact of every pronoun having a synonym, *i. e.* a substantive into which it may be translated. Every *this* is *this* something—*this man, this stone, &c.* Now when the two names are thus joined, the result is a substance *plus* its relations.

Let the two ideas so far combine that the two words which form them partake of the nature of a compound.

Let one of the words undergo a change of form, the result of which will be that the word in combination with the substantive will be slightly different from what it is when separate and independent.

The result, too, will be that out of the root of *this* and *that* we get *the*, a word incapable of existing by itself, but common enough, under the name of the definite article, in conjunction with a substantive.

And out of the numeral *one* we get *an* and *a*, words incapable of existing by themselves, but common enough, under the name of the indefinite article, in conjunction with a substantive.

DIALOGUE.

Question.—What are the words in English that come under the title of article as thus explained, *i. e.* what are the words in English which are, at one and the same time,

a. Pronominal in origin; and

b. Incapable of existing, except in conjunction with either a substantive or some other pronoun?

Answer.—*An* (or *a*) and *the*.

Question.—Are there any others?

Answer.—Not in the ordinary grammars. More than one competent writer, however, has suggested that *no* is an article. To be this, it must, of course, be considered as different in its construction from the ordinary negative. In which case it certainly comes under the conditions of an article. It has no independent existence. It *has* an existence when coupled with a substantive or another pronoun. It = *not one*, and *none*, in power. But we can by no means use it, as we can those words, categorically. It seems, in short, to be truly articular.

Question.—Are there any others?

Answer.—The construction of *every* is exactly the construction of *no*. We can say *every man* as we can say *no man*, and *every one* as we can say *no one*; but we cannot say *every* and *no* alone.

Question.—What do you say to *many a-*, and *never a-*, in such phrases as *many-a-one* and *never-a-one*? Are they articular?

Answer.—Certainly. But they are simply the indefinite *a* with a certain prefix. *Every* (= *ever* + *ilk* = *each*) is in a different category. It is not only articular, but a separate independent article.

The recognition of *every* and *no* as articles, are measures of the extent to which the previous doctrine as to the essential characteristics of the article alters the phraseology of the ordinary grammars.

It now only remains to ask, what are the logical conditions which more particularly evolve or develop the article? For these we may look to § 26.

1. *Every* expresses a universal affirmative ;
2. *No*, a universal negative ;
3. *A* and *the*, the particular affirmative ; the former indefinitely, the latter definitely.

DIALOGUE.

Question.—Are there no articles except those that express the quantity and quality of propositions?

Answer.—The words that express the quantity and quality of propositions (*an* and *the*, by the way, do this, and something more) are the chief. At the same time there are others. Though we can say,

This hat is *mine*,

we cannot say,

This hat is *my* ;

so that *my*, *thy*, *our*, and *your*, are articular in respect to their construction — articular in construction, and pronominal in origin. If not actual articles, they are closely akin to them.

124.

The Substantive.

§ An inconvertible subjective name is called a Substantive.

In other words—

A Substantive is an inconvertible name, capable of forming by itself, and single-handed, either subjects or predicates.

More than this it is unnecessary to say, inasmuch as the function of the ordinary substantive has already been investigated in the sections that treat of names.

125.

The Adjective.

§ A word capable of forming the predicate, but not the subject of a proposition, is called an Adjective.

The extent to which an adjective is no name, but only a word suggestive of one, has already been noticed.

So has the relation between the adjective and the abstract substantive.

So has the fact of the adjective being the word expressive of an attribute.

So has the fact of the particular species of attribute expressed by the adjective being that of quality.

Adjectives express qualities ; pronouns, relations

126.

The Adjective.—Its relation to the Participle and the Verb.—States and Actions.

§ The ordinary division of attributes into qualities and relations has been made.

A further division of the particular class of qualities is still necessary. It is one that concerns the philologue and grammarian exclusively. The logician has but little to do with it. We shall

arrive at it by attending to certain shades of meaning illustrated by the following sentences :—

Ice is solid water.

Water is liquid ice.

Each of these is not only correctly constructed as a proposition, but is true as a matter of fact. Take the two together, and what do they imply? Change—change from solidity to liquidity; at any rate, change of some kind. How is this change effected? Does the water in becoming ice change itself from a liquid to a solid? Does the ice in becoming water change itself from a solid to a liquid? Or are some fresh agents brought in by which water is solidified and ice liquified? Say that there are, and that these agents are heat and cold, and we get the proposition that

Heat is the cause of ice becoming water,

and

Cold is the cause of water becoming ice.

So that now we get the idea not only of change but of agency.

And now for *solid* and *liquid* water write *solidified* and *liquified*.

Ice is solidified water;

Water is liquified ice;

Ice is water solidified by cold;

Water is ice liquified by heat.

Fio in Latin means *I become*. Hence *solidified* and *liquified* mean *become-solid* and *become-liquid*. The abstract names that correspond to these two words are *solidification* (= *the becoming-solid*) and *liquifaction* (= *the being-made-liquid*). Why are they different? Why does one end in

-fication and the other in *-faction*? Why not say either *solidifaction* and *liquifaction*, or *liquidification* and *solidification*? There is no great reason why we should not. The difference between a thing *becoming solid* (or *liquid*) and *being-made solid* (or *liquid*) is rarely of much importance in ordinary language. Both expressions, however, suggest the idea of change; one the idea of change effected spontaneously by the object itself, the other the idea of change impressed upon it from without.

Now *solid* and *liquid* are adjectives, whereas *solidified* and *liquified* are participles, whilst *solidify* and *liquify* are verbs. This shows the extent to which adjectives, participles, and verbs, are allied.

They are allied, but different, and the difference between them consists in the idea of change and agency implied by the participle and the verb. *Solidity* is a state; *solidification* an action. Yet the *solidity* of water in the shape of ice, and the *solidification* which water undergoes in order to become ice, are equally attributes of water.

For *liquify* write *thaw*.

For *liquified* write *thawed*.

To the right of each write *the water is*. Thus

The water is liquid.

The water is thawed.

From *thawed* eject the *-ed*, and substitute for it *-ing*—*the water is thawing*.

For *is thawing* write *thaw-s*; as, *the water thaws*.

What is the result? Even this—that the predicate and copula have coalesced in one word, and that *thaws* = a predicate + a copula.

The adjective has become first a participle, afterwards a verb.

How? By changing the state expressed by the word *liquid* into the action denoted by the word *liquified*.

The slightest departure imaginable from the expression by which we denote the permanent state or condition of an object has this effect. To say that

Water has the property of liquidity,

Water is endowed with liquidity,

Water becomes solid under certain circumstances,

Water can become solid,

and the like, is to make water (the substance) more or less of an agent, and its attribute more or less of an action.

To have the attribute of liquidity, is to act the part of a possessor or owner.

To be endowed with the same is to be acted upon by some imaginary endower.

To become anything is to pass from one state to another, through one or more intermediate ones.

The water that *can* become solid has certain powers—no matter whether exercised or not.

And so on through a whole list of similar expressions.

Except when we mentioned the words *heat* and *cold*, we have hitherto spoken as if, in the changes under notice, it was the *water* that was the agent. But what if, instead of saying,

Water becomes ice,

we say,

Water is made into ice?

In such a case water is anything but an agent. On the contrary, it is extremely passive; the agent being elsewhere. In propositions like—

Cold changes water into ice,

Cold freezes water,

Cold solidifies water,

we get the agent in question,—the agent which, at the first view, appears to make the ice. Yet it only makes it through the action of the water.

However, the agency is now complete; and we have both the cause (*cold acting on water*) and the effect (*solidification*). We have also the substances—*ice, water, and cold*—as well as the attributes, viz. *solidity, liquidity, power of being changed from liquid to solid, and vice versâ, power of changing, &c.* The cold acts upon the water, producing a result.

Now this action proceeding from the *cold* effects a result in the *water*—passing, or making a *transit* (so to say), from the one to the other. The action, energy, manifestation of power, or whatever we choose to call it, is now at its *maximum*. This is the case with the class of verbs called *transitive*. There is the agent and the object, and there is the relation between the two. The ordinary conditions of a state (a word implying permanence) are wholly absent. The only state in the matter is a state of change; and this is scarcely a state at all.

Where the verb is transitive the term is many-worded, for a transitive verb implies the existence of some object upon which it acts; and a transitive verb, unaccompanied by a name, is a contradiction in terms. The absence of such a name renders it intransitive, even though in form it be transitive.

I move my limbs is a proposition of which the predicate is a many-worded term.

| | | |
|-----------------|----------------|-------------------|
| <i>Subject.</i> | <i>Copula.</i> | <i>Predicate.</i> |
| I | am | moving-my-limbs, |

the word *move* being transitive.

I move = I am moving—Here the verb *move* is intransitive, merely meaning, *I am in a state of motion*.

The water freezes—This is what we say when we look upon the solidification of water as an action of the water itself; *freezes* being intransitive.

The cold freezes the water—This is what we say when we look upon the action of cold as the cause of the water becoming solid; *freezes* being transitive.

There are, then, degrees in the extent to which an attribute may be an action rather than a state.

1. *The sun is bright*—Here we think more of what the sun *is* than what it *does*.

2. *The sun is a bright body*—Ditto.

3. *The sun is a shining body*—The notion of action now begins. Nevertheless the word *body* limits it. We think quite as much of the sun being a *body* as of a *body shining*.

4. *The sun is shining*—The idea of action becomes stronger.

5. *The sun shines*—The idea of action becomes stronger still.

6. *The sun dazzles*—Stronger still.

7. *The sun dazzles our eyes*—Here we have agent and object—doing and suffering—action and passion; and the verb has attained its *maximum* of verballity.

127.

The Verb.

§ A word capable of forming by itself both the predicate and the copula of a proposition, is called a Verb.

Verbs are categorematic, and something more, *i. e.* hypercategorematic.

They have two parts—(1) one copular, (2) the other predicative.

| | |
|-----------------|----------------------------|
| <i>Subject.</i> | <i>Copula + Predicate.</i> |
| I | speak |

is the verbal form of

| | | |
|-----------------|----------------|-------------------|
| <i>Subject.</i> | <i>Copula.</i> | <i>Predicate.</i> |
| I | am | speaking. |

128.

The Participle.

§ The predicative element of the Verb, when isolated and treated separately, is called a Participle.

A participle (*i. e.* a verb *minus* the copula) is in all respects an adjective, the quality whereof consists in an action rather than a state.

Like the adjective, the participle is predicatively categorematic.

If all propositions were perfectly simple, *i. e.* if there were no such things in language as complex terms, the parts of speech just enumerated would comprise all the words admissible into propositions, or, what is the same thing, all the words, with few

exceptions, that constitute language. But all terms are *not* simple ; and the existence in language of complex ones creates the occasion for other classes of words, or other parts of speech. There exist in language parts of speech, or classes of words for the admission whereof into propositions a certain degree of complexity in either the subject or predicate is a condition. These parts of speech, or classes of words, are two in number—Adverbs and Prepositions.

129.

Adverbs.

§ A word inadmissible in a simple, but admissible in a complex term, and therein requiring the presence of only a *single* categorematic, or hyper-categorematic, element is called an Adverb.

John is speaking loudly =
John speaks loudly.

All words that can take the place of *loudly* in proposition are Adverbs.

But—

A verb = predicate + copula.

Add to which, that

It is its predicative or adjectival element which is modified by the adverb ; a part of speech which is really as much of an *ad-adjective* as an *ad-verb*.

Adverbs give the *manner* or *mode* in which the action denoted by the verb takes place. Of these there are several species, inasmuch as not only the general character and degree of an action come under the denomination of a *mode*, but the cor-

ditions of time and place as well, along with others of less importance.

He speaks ;

He speaks *loudly* ;

He speaks *very* (degree) loudly ;

He speaks very loudly *now* (time) ;

He spoke *there* (place).

From *modus* (= *mode*) we have the logical terms *modal* and *modality* ; terms by which we express the function of the adverbs.

For an adverb to find its place in a proposition all that is necessary is a word denoting some action, to which the idea of the manner in which, or the conditions under which, it takes place is added.

130.

Prepositions.

§ A syncategorematic word requiring for its introduction into a term *two*, or more, categorematic elements (those being subjective), is called a Preposition.

Hence—

Prepositions connect subjectives, when more than one of them occurs in a term.

In such an expression as, *I am come from London by way of Windsor, and am going to Bristol through Bath*, all words which can take the place of *from*, *to*, *of*, and *through*, are Prepositions.

Pre = *before* ; *positio* = *a placing*, or *position*. Now, although words like *from*, *to*, &c., in the currently-studied languages, precede their subjective categorematic, it is by no means a matter of necessity that they should do so. Indeed, in many

languages they *follow*. If so, the so-called *preposition* is really a *post-position* (*post* = *after*).

Hence, the term *preposition*, though current, is exceptionable, being too specific.

Observe—The inconvenience of the ordinary classification into nouns (containing substantives and adjectives) and pronouns is made manifest by a sentence of this section—"Prepositions connect pronouns and subjectives, &c." Some more familiar term was wanted here. To have said that prepositions connected *nouns* would have been wrong; inasmuch as adjectives are nouns, and adjectives, except so far as they are attached to some substantive or pronoun, are *not* parts of speech to which a pronoun can attach itself.

To have said that prepositions connected *pronouns* would also have been wrong. The statement would have been too narrow. They connect substantives as well.

It would also have been wrong to have said that they connected *substantives*. They also connect pronouns.

As soon as we understand the fact of prepositions indicating a *relation*, we see the impossibility of their finding a place, either in a simple term or in a term containing only one name. For a *relation* to exist there must be at least two related objects.

131.

Conjunctions.

§ A word which connects either two terms of the same kind, within the same proposition, or else two propositions, is called a *Conjunction*.

Mark, the words *of the same kind*. The *copula* connects two terms, viz. the subject and predicate ; but these are *not* of the same kind.

In the proposition—

All men are black or white,

the conjunction *or* connects *black* and *white*—both predicates.

In—

*The day is bright,
because*

The sun is shining,

the conjunction *because* connects two propositions.

Conjunctions are extra-terminal ; *i. e.* they lie beyond the term.

Conjunctions are extra-terminal. Nevertheless, though they lie beyond the boundaries of any *single* term, they imply the existence of *two*.

132.

YES and NO.

§ For the present we may call these simply Affirmatives and Negatives.

Yes = It is so.

No = It is not so.

The single words stand as the equivalents to whole propositions.

Is this enough to make them separate parts of speech?

Not alone. Several words are in the same predicament ; and they are words belonging to different divisions of grammar.

N

Here and *there*, in answer to the question, *where?* may do so :—

Where are you ? Here.

One, two, &c., do the same, in answer to *how many ?*

How many are there ? Two.

Yet *one* and *two* can scarcely be called adverbs.

Can *yes* and *no* ? They are certainly adverbial rather than anything else. For the present, however, they are dealt with as parts of speech, *per se*.

They constitute a proposition. At the same time (being answers to a question) they imply a previous one.

133.

Interjections.

§ A part of speech that exists wholly independent of propositions is called an Interjection.

Words like *oh ! ah ! pish ! &c.*, are Interjections.

134.

Inflection.

§ We have now gone through what are called the parts of speech, by which is meant the noun, pronoun, verb, &c., of the ordinary grammars.

So doing, we have looked at them from one point of view only. We have considered them solely and wholly with a view to the place which they severally take in the structure of the proposition.

Now, although it has not been stated, *totidem verbis*, that this mode of treatment is different from

that of the usual works on grammar, it has been more than once suggested that such is actually the case. More than once has the reader been reminded that the tests or *criteria* by which the parts of speech of the present treatise are determined are, in some degree, peculiar. Yet they are by no means either very doubtful or very obscure. Why, then, are they either wholly absent or imperfectly exhibited in the usual works upon language? Have the grammarians overlooked them altogether? Or has the present writer overlooked certain facts that modify their application?

The answer to this involves the consideration of the phenomena of what is called Inflection.

Firstly, that of the term itself.—Let a word be changed in respect to its form, and let these changes be compared to the *bends* of a trained tree; only instead of the English word *bending*, let us use the Latin term *inflectio* (from *flecto* = *I bend*), and say that “certain words, under certain conditions, are *inflected*,” or “exhibit *inflections*.”

Next, let us consider the functions of a preposition. It is clear that the words so called are merely so many means to an end; that end being the expression of certain relations between certain substantives and pronouns—certain substantives and pronouns, sometimes single, sometimes conjoined with, or attended by, an adjective. Of these means there may, certainly, be more than one sort; at any rate, we know of no necessity for the expression of the relation in question being limited to one form. We may make this clear by taxing our ingenuity in the formation of an artificial lan-

guage, one of the conditions of which should be that there should be no prepositions. We may do it more easily still, by simply comparing such a pair of words as *father's son*, with the three words, *son of father*. In the former the appended sound of the final 's does the work (there or thereabouts) of the word *of* in the latter. And why can we not go further? why not say *fateri*, *fathero*, *fathert*, or something of the same sort, for *to father*? Why not say *fatherl*, or *fathera*, for *from father*, and so on? The answer to this question is, that it is not the custom of the men and women who speak English to do so. That the Latins, however, did so is well known. So did the Greeks. So did our own ancestors to some extent. In Latin—

Pater = *father*.

Patris = *father's*.

Patri = *to father*.

Patres = *fathers*.

Patrum = *of fathers*.

Patribus = *to fathers*.

That there is a broad difference between the system which gives us such a single word as *patri*, and the system which gives us such a combination as *to a father*, is clear; and it is highly probable that, with such a difference existing, there is also a name by which it is expressed.

What is this name? Like many others, it will involve a metaphor. The idea which gives us the names for such a form as *patri*, &c., is the idea of *falling* or *declining* from an *upright* position; an idea which brings us to such terms as *case* (from *casus* = *fall*), and declension (from *declino* = *decline*).

Let *father* in English, and *pater* in Latin, be the original categorematic forms—forms capable of

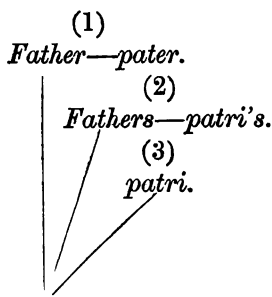
making either the subjects or predicates of propositions *by themselves*.

Let *father's* and *patri's* be considered to be the same words, though in a less upright, independent position. In short, let us call them *fallings-off* from the original; only, instead of *fallings-off*, let us use the Latin word *case*.

Patris and *father's* will, then, be *cases* of *pater* and *father*; and—

The system that gives us the series *pater*, *patris*, *patri*, will be a system of what is called declension.

Carry the metaphor still further. Let an upright line represent *pater*, and let the several slants it would give in falling represent the cases.



No. 1 is *upright*. In reality, it is no case (or falling) at all. It is customary, however, to call it the *Casus Rectus*, or Upright Case; and, inaccurate as the expression is, it is not very inconvenient.

Nos. 2 and 3 are *Oblique*, *i. e.* Oblique Cases; and so they are called in grammar.

Certain inflections are the equivalents to prepositions.

A categorematic word *plus* the equivalent to a

preposition, is in the same predicament with a categorematic word *plus* a preposition itself. Such a word as *patri's* can no more form a term than such a combination as, *of a father*.

And this explains a common statement in books of logic, viz. that it is only nouns in the Casus Rectus that are categorematic. In an oblique case, a noun, for all its importance, and all its otherwise categorematic character, can only be the part of a term.

135.

Inflection.—Number.

§ The previous section has shown that the relation which two words in the same term bear to each other may be expressed by declension, instead of by separate words in the shape of prepositions.

Are there any other modifications of meaning which may be expressed either by the same or similar means?

We have seen that there are. The difference between *pater* and *patres*, between *father* and *fathers*, is a difference of *Number*.

136.

Inflection.—Gender.

§ In Latin *dominus* = *master*, whilst *domina* = *mistress*; and this difference of form, as indicative of a difference of sex, is carried throughout the cases and numbers.

| | |
|-------------------|----------------------------|
| <i>Dominus,</i> | <i>a master.</i> |
| <i>Domino,</i> | <i>to a master.</i> |
| <i>Domini,</i> | <i>masters.</i> |
| <i>Dominorum,</i> | <i>of masters, &c.</i> |

As opposed to—

| | |
|-------------------|-------------------------------|
| <i>Domina,</i> | <i>a mistress.</i> |
| <i>Dominæ,</i> | <i>of a mistress.</i> |
| <i>Dominarum,</i> | <i>of mistresses, &c.</i> |

This difference is a difference of *Gender*.

137.

Inflection.—Gender.—Of Pronouns.

§ In ordinary substantives the phenomenon of gender is of no great importance.

But it exists in Pronouns also, where it modifies the statements of §§ 90–96.

In Latin *ille* = *he*, whereas the form for *she* is *illa*.

What do these words tell us? They tell us that the object to which they apply is in a certain relation to the speaker, *i.e.* that it is the object *spoken of*, rather than the object *speaking*, or the object *spoken to*.

But they tell us something more. They tell us that the object designated by *ille* is a *male*, the object designated by *illa* being a *female*.

Now the sex of an object is not only one of its *attributes*, but it is one of its *qualities*. If so, pronouns expressive of sex are pronouns and something more, *i.e.* pronouns with an adjectival power superadded.

138.

Inflection.—Degrees of Comparison.

§ Instead of *more wise* and *most wise*, say *wiser* and *wisest*, and you have a pair of single words

acting as the equivalent to a pair of combinations.

This is the expression of a difference of *Degree* by either a declension or something akin to it. At any rate, it is the expression of a *mode* by means of an *inflection*.

139.

Inflection of Verbs.—Conjugation.

§ Like nouns and pronouns, verbs are inflected, the time (past, present, or future) at which an action takes place, and the agent does it (the *speaker*, the object spoken *to*, or the object spoken *of*), being the chief elements in the complex idea expressed.

In Latin—

| | | |
|------------------|---|-----------------------------|
| <i>Voco</i> | = | <i>I call ;</i> |
| <i>Vocas</i> | = | <i>Thou callest ;</i> |
| <i>Vocat</i> | = | <i>He calls ;</i> |
| <i>Vocamus</i> | = | <i>We call ;</i> |
| <i>Vocatis</i> | = | <i>Ye call ;</i> |
| <i>Vocant</i> | = | <i>They call ;</i> |
| <i>Vocavi</i> | = | <i>I called ;</i> |
| <i>Vocavisti</i> | = | <i>Thou calledst ;</i> |
| <i>Vocavit</i> | = | <i>He called, &c. ;</i> |

all of which is so much inflection.

The inflection of verbs is called their conjugation. Hence—

The conjugation of verbs, and the declension of nouns and pronouns, are two species of the genus inflection.

140.

Criticism.

§ We are now in a position to see the possibility of the phenomena of inflection traversing, complicating, and modifying, the doctrine founded upon a basis exclusively logical.

The close relations that logically exist between the verb and noun have already been noticed (§§ 126–128). What, however, would be the effect of a verb, on one side, being so fully conjugated, and a noun, on the other, being so fully declined as for neither of them to appear without some sign of either their nominal or verbal character attached to, and inseparably connected with, it? The logical affinity would be concealed by the inflectional differences.

Now this is no imaginary case. In English the word *envy* is either a *verb* or a *noun*, and we may say either *I envy him*, or, *I look upon him with eyes of envy*.

In Greek the syllable *fthon* (φθον) has the same power. Between, however, the Greek language and the English there is this difference: the former never uses the syllable *fthon* by itself. If it be nominal in its power, it has certain inflections attached to it that are peculiar to nouns; whereas, if it be verbal, a verbal inflection is assigned to it.

No noun in Greek ends in *-ein*. Many verbs do; indeed, *-ein* is a verbal, or conjugational, inflection, and by no means a nominal or declensional one. What, however, if a word so ending take the place, in a proposition, of a substantive? There is,

to a certain extent, a conflict between the logical and formal tests.

And this really exists. The combination to *fthonein* (το φθονειν) = *envy*, the substantive. Yet it has the outward signs of a verb; and a verb it is, if we look to the form only. Look, however, to the meaning, and it is a noun.

That this complication would be abolished if we abrogated the inflections is clear, since such a word as *fthon* might (like *envy*) as easily be a noun as a verb. But, on the other hand, it might as easily be a verb as a noun; for a word with no characteristic signs at all may be anything or everything, as a part of speech. In *I go up*, the word *up* is an adverb. In *I go up the tree*, it is a preposition.

Separated from its inflections, the root *fthon* would have been what we may call *indifferent*, *i.e.* would have been, like the word *up*, a word as capable of being one part of speech as another. This, indeed, is the case with the word lately quoted — *envy*. It has nothing about it more nominal than verbal, or more verbal than nominal.

141.

Determination of Forms by Inflection.

The smaller the amount of inflection, the greater the number of indifferent words; *i.e.* words like *up* and *envy*, as opposed to *fthon-os*, and *fthon-ein*, which may be called *determinate*.

142.

Criticism.

Without going further into these details, we may see from the little already written that the grammarian who undertook the arrangement of the parts of speech according to the logical properties of the words of the language under notice, might find his classification traversed by the apparent contradictions suggested by their inflectional forms. And such has actually been the case. The etymological test has been opposed to the logical, and *vice versâ*.

It is maintained, however, by the present writer that this antagonism is apparent rather than real. It is held, too, that even if it were more real than it is, it would affect but a small portion of the wide field of language. In languages where inflections are rare, and the forms of the words indifferent, the etymological difficulty has no existence, there being no *formal* test by which the *logical* can be traversed. And even in languages where inflections are abundant, the only parts of speech which can create any difficulty are the verbs and nouns—these being the only two in which any notable amount of inflection occurs. The extent, however, to which a verb is allied to the noun, has already been exhibited.

It is undoubtedly true that in such a sentence as *they spoke*, the idea is wholly verbal. But abstract from it the ideas of the agents (expressed by *they*), and look upon the action without regard to the time in which it occurred, and the idea becomes

that of the *act of speaking* in general, an idea purely substantive. In like manner—

To err, is human ; *to forgive*, divine,
gives us the truly substantive ideas of—

Error is human, *forgiveness*, divine.

Instances of this kind could be multiplied, if necessary, *ad infinitum* ; enough, however, has been written to show that the difference between the logical and inflectional tests is less real than apparent. That a word expressive of the same idea may sometimes appear as a pure verb, sometimes as a participle, and sometimes (as in the infinitive mood, the gerunds, and supines) as a substantive, is admitted in all grammars—though not, perhaps, so explicitly as it should be

143.

Pronouns and Participles as compared with Substantives and Adjectives.

§ To proceed. It has been the object of the preceding sections to show that—

All words forming different portions of a proposition are different parts of speech.

Is the converse of this true ? Is it true that—

All words forming the *same parts* of a proposition are the same parts of speech ?

Not according to the present classification. A pronoun takes the same place in a proposition as a substantive, and a participle as an adjective. Nevertheless, pronouns and participles are separate parts of speech. Of course this may be altered by altering the definition of the term part-of-

speech. It is doubtful, however, whether this will be done.

The difference of idea conveyed by a participle as contrasted with the ordinary adjective, and the pronoun as compared with the substantive, has already been explained. It is the difference between an action and a state, a quality and a relation.

144.

Recapitulation.

To recapitulate.—Words fall into two primary divisions :—

I. Those that are wholly independent of propositions ; and,

II. Those whose existence depends upon the existence of a proposition.

The former class contains the interjections only.

The second falls into three divisions ; the *first* containing such words as YES and NO (= *it is so*, and *it is not so*), words equivalent to a whole proposition. They are answers to questions, and, as such, imply the existence of a previous proposition.

The *second* contains the conjunctions, words whose place lies *between* two terms, but not *in* any term at all. These terms must be of the *same* kind, *i. e.* either subjects or predicates. They need not, however, be within the same proposition ; indeed, they rarely are so. If so, conjunctions are of two kinds—

Interterminal, or between the terms of the one and the same proposition ; *e. g.* *all men are black or white.*

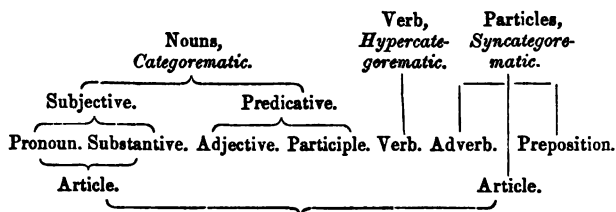
Interpropositional, or between two different propositions ; *e. g.*—

*The day is bright,
because*

The sun shines.

Of *copulas*, or words that connect different terms, *i. e.* the subject with the predicate,—there is no instance in language ; consequently, there is no such part of speech as the copula. The word that serves as a copula is always a copula and predicate beside. For the explanation of the apparent paradox, see § 15.

The *third*, and most important class, contains those words which enter into the structure of terms, sometimes by forming whole ones, sometimes by forming parts of ones, and sometimes by forming terms, and something more. These are as follows :—



The reasons of the several places of the above-named classes of words are by no means obscure, and they are often given in the ordinary grammars with sufficient perspicuity.

Nothing but the name of a substance either really existing, or capable of being perceived by the senses, or conceived by the imagination, can form the Subject of a proposition.

This is expressed in the current grammatical

definition of a substantive as the *name of anything we can see, hear, feel, or discourse of* (*i. e.* reason about).

Such a substance must either possess or be without certain attributes ; *e. g.* it must either be *white* or *not white*. Hence, any word which suggests the name of an attribute may form a Predicate ; *e. g.*—

Snow is white ;

Soot is not white.

But we may also predicate of any substance that it may be equal to, or identical with, another ; *e. g.*—

A man is an animal.

A bird is not a quadruped.

This shows that the name of a substance may enter into the structure of a proposition either as subject or as predicate.

Every object or entity must be endowed with certain qualities or attributes ; *e. g.* *snow is white* —*man is mortal*. That the names of such qualities or attributes can become the predicates of propositions, has been shown above.

In order, however, for it to be a subject, it must be something more than a word suggestive of a name. It must be the name itself.

With substantives the name denotes the object directly.

With pronouns it denotes it indirectly, *i. e.* through its relations.

Verbs express actions implying that a certain object comports itself in such and such a manner. It *is* something, or it *does* something, or it *suffers* something. So run the usual expositions of the meaning of the word verb.

Nothing but a word of this kind can be at once predicate and copula. The predicate element denotes the particular state or action ; the copula element, its existence, or, to speak more generally, its applicability or non-applicability to the subject.

In order for a proposition to be simple, its terms must be simple.

The only sorts of words which can be admitted into complex terms are words which either express, 1st, the relation that *two* or more nouns bear to one another, or, 2ndly, the mode (or manner) in which states or actions take place. And it follows from hence that the only words admissible into a term where there is but *one* noun (or nominal element) must be words expressive of the mode (or manner) of a state or action. Words of this kind are called Adverbs, because the predicate with which they combine generally coalesces with the copula, and becomes a verb.

The only other class of words must consist of those that denote the relation that one out of two or more nouns in a term bears to the others.

This explains the nature of *adverbs* and *prepositions*.

When the words that find their places within the limits of a term have been exhausted, we come to the conjunctions that, belonging to no single term, connect two.

145.

Place of the Article.

§ The place of the article is peculiar. In respect to its origin, it is pronominal. So it is in respect

to its import, for it is certainly a relation that it expresses. But its place in a proposition is that of a syncategorematic (and not a categorematic) word.

Its true relations are found in the remarks upon the Wallachian and Icelandic languages in § 123 ; wherein it is shown to coalesce with the substantive, and to become not only a part of a *term*, but also a part of a *word*. In such a condition it partakes of the nature of an inflection ; so that a substantive *plus* an article is in much the same condition as a substantive *plus* the equivalent of a preposition.

The question now arises as to whether inflections can be called parts of speech.

They are not called so at present, however much they may be equivalent to them.

Nevertheless, it is safe to call an article a *sub-inflectional* word—*i. e.* a word which, without being actually an inflection, approaches one.

146.

Development of Inflections.—Conclusion.

§ This leads to a fresh series of investigations, a series of great importance and interest, but foreign to the present work.

The history of the article has been the history of either an actual inflection or something closely akin to it, developed out of a word originally separate and independent.

What if other inflections are in the same predicament ? What if the signs of case in nouns have similarly originated out of prepositions ? What if the signs of persons in verbs are pronouns ?

What if—but instead of raising further questions on these points, let us simply say that the natural history of language tells us that all this, and much more like it, actually takes place. As, however, it is the Natural History of Language, and not of Logic, that gives us information on these points, the present treatise concludes with a mere indication of the question.

FINIS.

BY THE SAME AUTHOR.

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